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LECTURES ON MR. DARWIN'S PHILOSOPHY OF LANGUAGE.

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THIRD, LECTURE.

THE problem which of late years has most deeply stirred the philosophic mind of Europe is the problem of creation. No doubt that problem is as old as the world, or at least as old as the first questionings of the human mind; and the solutions which it has received, both from poets and philosophers, are innumerable. Out of many solutions one, which best satisfies the enquiring intellect of the time, generally prevails. In ancient times one or the other solution has even been invested with a kind of sacred authority; and, as the subject is one on which real knowledge is impossible, it is hardly to be wondered at, that, with us too, the prevailing conception of creation should have continued, up to the nineteenth century, very much the same as what it was at the time of Moses.

Owing to the great development, however, of the study of nature in this century, and the wide diffusion of physical knowledge among all classes of society, the problem of creation has lately risen to the surface again. New facts challenge new thoughts, and the mass of new facts, throwing light on the earliest history of the world, has become so large that we need not wonder if philosophers felt inspired with fresh courage, and by elaborating a new theory of creation, which should not outrage the convictions of men of science and friends of truth, tried to wrest a new province from the land of the Unknowable.

The approaches were made from three points. First of all, there were the ancient vestiges of creation discovered in the strata of the earth; secondly, there was

the living history of creation to be studied in the minute stages of embryonic development; and thirdly, there was the comparative method of anatomy, laying bare essential coincidences in the structures of living beings, even of such as had never before displayed the slightest traces of relationship.

The zealous and successful pursuit of these three branches of physical study, now generally spoken of as *Paleontology*, *Embryology*,* and *Comparative Anatomy*, has produced the same effect with regard to the problem of creation which our own linguistic studies have produced with regard to the problem of the origin of language and thought.

As long as the question of the origin of language was asked in a general and indefinite way, the answers were mostly as general and as unsatisfactory as the questions themselves. In fact, the crude question, How was human language made, or how did it arise? admitted of no scientific answer, and the best that could be said on the subject was, that, like the beginnings of all things, the beginning of language, too, transcends the powers of the human understanding. But, when what we may call paleontological studies had placed before us the earliest vestiges of human speech in the most ancient inscriptions and literatures of the world; when, secondly, a study of living languages had disclosed to us the minute stages of dialectic growth and phonetic decay, through which all languages are constantly passing in their passage from life to death and from death to life; and when, lastly, the comparative method had disclosed to us the essential coincidences in languages, the relationship of which had never been suspected before, then the question of the origin of language started up again, and called for a new and more definite answer.

The analogy between the researches carried on by the students of physical science and by the students of language goes still farther. Whatever difference of opinion there may be between the different schools of physiologists, this one result seems to be permanently established, that

the primary elements of all living organisms are the simple *cells*, so that the problem of creation has assumed a new form, and has become the problem of the origin and nature of these cells.

The same in the Science of Language. The most important result which has been obtained by a truly scientific study of languages is this, that, after accounting for all that is purely formal as the result of juxtaposition, agglutination, and inflection, there remain in the end certain simple elements of human speech—phonetic *cells*—commonly called roots. In place, therefore, of the old question of the origin of language, we have here, too, to deal with the new question of the origin of roots.

Here, however, the analogy between the two sciences, in their solution of the highest problems, comes to an end. There are, indeed, two schools of physiologists, the *polygenetic* and the *monogenetic*, the former admitting from the beginning a variety of primitive cells, the latter postulating but one cell, as the source of all being. But it is clear, that the monogenetic school is becoming more and more powerful. Mr. Darwin, as we saw, was satisfied with admitting four or five beginnings for plants, and the same number for animals. But his position has become almost untenable, and his most ardent disciple, Professor Haeckel, treats his master's hesitation on this point with ill-disguised contempt. One little cell is all that he wants to explain the Universe, and he boldly claims for his primordial Moneres, the ancestor of plants and animals and men, a self-generating power, the so-called *generatio spontanea* or *aquiva*.

Professor Haeckel is very anxious to convince his readers that the difference between these two schools, the *monogenetic* and *polygenetic*, is of small importance. The differences, he says, between the various Moneres, whose bodies consist of simple matter without form or structure, and which are in fact no more than a combination of carbon in the form of white of eggs, are of a chemical nature only; and the differences of mixture in the endless varieties of combination of white of eggs are so fine as to be, for the present, beyond the powers of human perception.* But if this is so, surely the rule of all scien-

* It is impossible to use Ontology in the sense of Embryology, for Ontology has its own technical meaning, and to use it in a new sense would give rise to endless confusion.

* Haeckel, *Vorlesungen*, p. 372.

tific research would be, that we should wait before definitely deciding in favor of one primordial cell, and thus creating new trammels in the progress of free enquiries. Whatever the physiologist may say to the contrary, it does make a very great difference to the philosopher, whether the beginning of organic life has happened once, or may be supposed to have happened repeatedly; and though I do not grudge to the *Bathybios* of Haeckel the dignity of a new Adam, I cannot help feeling that in this small speck of slime, dredged up from the bottom of the Atlantic Ocean, there is too much left of the old Adam, too much of what I call mythology, too much of human ignorance, concealed under the veil of positive knowledge.

The students of language have given to the problem of the origin of language a far more exact and scientific form. As long as they deal with what may be called the Biology of language, as long as they simply wish to explain the actual phenomena of spoken dialects all over the world, they are satisfied with treating the variety of living cells, or the significant roots of language, as ultimate facts. These roots are what remains in the crucible after the most careful analysis of human language, and there is nothing to lead us on to search for one primordial root, or for a small number of uniform roots, except the mediæval idea that Nature loves simplicity. There was a time when scholars imagined they could derive a language from nine roots, or even from one; but these attempts were purely ephemeral.* At present we know that, though the number of roots is unlimited, the number of those which remain as the actual feeders of each single language amounts to about one thousand.

Some of these roots are, no doubt, secondary and tertiary formations, and may be reduced to a smaller number of primary forms. But here, too, philological research seems to me to show far more deference to the commandments of true philosophy than the prevalent physiological speculations. While the leading physiologists are striving to reduce all variety to uniformity, the student of language, in his treatment of roots, distinguishes where, to all outward appearance, there is no perceptible difference whatsoever. If in

the same language, or in the same cluster of languages, there are roots of exactly the same sound, but different in their later development, a separate existence and an independent origin are allowed to each. There is, for instance, in the Aryan family, the well-known root DA. From it we have Sk. *dādāmi*, I give; Greek *δίδωμι*; Lat. *do*; Slavonic, *da-mi*; Lithuanian, *du-mi*;^{*} and an endless variety of derivatives, such as *donum*, a gift; French, *donner*, to give, *pardonner*, to forgive; Latin, *trado*, to give over; Greek, *πρὸςδίδωμι*, to surrender; then Italian, *tradire*; French, *trahir*, *trahison*; English, treason; Latin, *reddo*, to give back; the French, *rendre*, with all its derivatives, extending as far as *rente* and *rentier*. Another derivative of DA, to give, is *dās*, *dōtis*, a giver, in which sense it occurs at the end of *sacer-dos*; and *dās*, *dōtis*, what is given to the bride, the English *dower* (the French *douaire*), which comes from the French *douer*, *dotaire*, to endow; a *dowager* being a widow possessed of a dowry.

I might go on for hours before I could exhaust the list of words derived from this one root, DA, to give. But what I wish to show you is this, that by the side of this root DA there is another root DA, exactly the same in all outward appearance, consisting of D + Ā, and yet totally distinct from the former. While from the former we have, in Sanskrit, *dā-trām*, a gift, we have from the latter *dā'-trām*, a sickle. The meaning of the second root is to cut, to carve; from it Greek *δαίω*, and *δαίωμα*, *δαυρός*, a man who carves. The accent remains, in Sanskrit, on the radical syllable in *dā'-trām*, i.e. the cutting (active); whilst it leaves the radical syllable in *dātrām*, i.e. what is given (passive).

There are still other roots, in outward appearance identical with these two, yet totally distinct in their potential character; meaning, neither to give, nor to cut, but to bind (for instance, in *διάδημα*, diadem, what is bound through the hair; *δέμα*, a band or bundle, *κρήδεμνον* (*κράς*, *δέμα*) head-dress; and another, meaning to teach, and to know, preserved in *διδίσκω*, Aor. Pass, *ἐ-δίδ-ην*, &c.

We have the root GAR, meaning to swallow, which yields us the Sanskrit *girati*, he swallows, the Greek *βιβρώσκει*,

* Lectures on the Science of Language, I. p. 44.

* Pott, *Etymologische Forschungen* 2nd edit. 1867, p. 105.

the Latin *vorat*. We have, secondly, a root GAR, meaning to make a noise, to call, which yields us *gar-ate* in Sanskrit, *γαργαρίζειν*, *βαρβαρίζειν*, and *βορβορίζειν* in Greek, and both *garrere* and *gingrire* in Latin. It is conceivable that these two roots may have been originally one and the same, and that GAR from meaning to swallow may have come to mean the indistinct and disagreeable noise which even now is called swallowing the letters, in Sanskrit *grāsa*, the German *Verschlucken*. But a third root GAR, meaning to wake, the Greek, *ἐγείρω*, perf. *γρήγορα*, can hardly be traced back to the same source, but has a right to be treated as a legitimate and independent companion of the other root GAR.

Many more instances might be given, more than sufficient to establish the principle, that even in the same language two or more roots may be discovered, identical in all outward appearance, yet totally different from each other in meaning and origin.

Then, why, it may be asked, do students of language distinguish, where students of nature do not? Why are physiologists so anxious to establish the existence of cells, uniform from their beginning, yet—I quote from Professor Haeckel—capable of producing by the processes of monogony, gemmation, polysporogony, and amphigony, the endless variety of living creatures? Students of language, too, might say, like the physiologists, that, in such cases as the root DA, ‘the difference of mixture in the endless varieties of consonants and vowels are so fine as to be, for the present at least, beyond the powers of human perception.’ If they do not follow that Siren voice, it is because they hold to a fundamental principle of reasoning, which the evolutionist philosopher abhors, viz., that if two things, be they roots or cells or anything else, which appear to be alike, become different by evolution, their difference need not always be due to outward circumstances (commonly called environment), but may be due to latent dispositions which, in their undeveloped form, are beyond the powers of human perception. If two roots of exactly the same sound

produce two totally distinct families of words, we conclude that, though outwardly alike, they are different roots. And if we applied this reasoning to living germs, we should say that, if two germs, though apparently alike, grow, under all circumstances, the one always into an ape, and never beyond, the other always into a man, and never below, then the two germs, though indistinguishable at first, and though following for a time the same line of embryonic development, are different from the beginning, whatever their beginning may have been.

There is another point of difference between the treatment of cells by physiologists, and the treatment of roots by philologists, which requires careful attention. The physiologist is not satisfied with the admission of his uniform cells, but, by subjecting these organic bodies to a new chemical analysis, he arrives in the end at the ordinary chemical substances (the *πρωτα στοιχεία* of nature), and looks upon these, not simply as ruins, or as the residue of a violent dissolution, but as the elements out of which everything that exists, whether lifeless or living, was really built up. He maintains, in fact, the possibility of inorganic substances combining, under favorable circumstances, so as to form organic substances, and he sees in the lowest Moneres the living proof of an independent beginning of life.*

In the Science of Language we abstain from such experiments, and we do so on principle. We do not expect to discover the origin of living roots by dissolving them into their inorganic or purely phonetic elements; for, although every root may be reduced to at least one consonant and one vowel, these consonants and vowels are simply the *materials*, but not the *elements* of language; they have, in fact, no real independent existence, they are nothing but the invention of grammarians, and their

* A further distinction is made between *Autogony* and *Plasmogony*. The former is the generation of the most simple organic individuals from an inorganic formative fluid, a fluid which contains the requisite elements for the composition of an organism, dissolved in simple and firm combinations, e.g. carbonic acid, ammoniac, binary salts, &c. The latter is the generation of an organism from an organic formative fluid, a fluid which contains the requisite elements dissolved in complicated and loose combination of compounds of carbon, e.g., white of eggs, fat, &c. (Haeckel, *Vorlesungen*, p. 302.)

* Haeckel, *Natürliche Schöpfungsgeschichte*, achte Vorlesung; Strauss, *Alter und Neuer Glaube*, p. 169.

combination would only give rise to meaningless sounds, never to significant roots. While the physiologist still entertains a lingering hope that, with the progress of chemical science, it may be possible to produce a living cell out of given materials, *we know* that roots are simple, that they cannot and should not be decomposed, and that consonants and vowels are lifeless and meaningless materials, out of which no real root ever arose, and out of which certainly, nothing like a root can ever be reconstructed. The root DA, for instance, means, as we saw, to give; dissolve it into D and A, and you have meaningless slag and scum. Recompose D and A, and you have indeed the same sound, but its life and meaning are gone, and no language could, by its own free choice, accept such an artificial compound into its grammar or dictionary.

Such are some of the coincidences and some of the differences between Biology and Philology in their attempts to solve the problems of the origin of life and the origin of language; and the question does now arise, Are we, in the Science of Language, driven to admit that roots, because they yield to no further analysis, are therefore to be accepted as unintelligible in their origin, as miraculously implanted in man, but not in animals; or may we hope to be able to go beyond this limit, and discover something which, while it makes the origin of roots perfectly intelligible in man, explains to us, at the same time, why they should never have arisen in any other animal?

Now I say, without hesitation, that roots, though they must be accepted as ultimate facts in the Science of Language, are not ultimate facts in the Science of Thought. The scholar naturally shrinks from a subject which does not directly concern him, and which, according to its very nature, does not admit of that exact treatment to which he is accustomed; but the philosopher must accept facts as they are, and his interests are with the Chaos as well as with the Kosmos. As the medical man, who has to study the marvellously arranged network of the nerves, shrinks instinctively from hypothetical explanations of the first formation of nervous channels, and centres, and ganglia, and plexuses, the scholar, too, is frightened by the chaotic proceedings which are inevitable when we come to ask, how roots came to be what they are. But to those who are ready to deal with hypo-

thetical subjects in a hypothetical manner, there is nothing mysterious or irrational in the origin of roots. Only let us not forget that roots are not merely sounds, but sounds full of meaning. To take the roots *gā*, to sing, *dā*, to give, *vā*, to blow, and to ask why the three different consonants, g, d, v, should produce such difference of meaning, is absurd, and can never lead to any results. These consonants, though, when we learn our A B C, they look so very real, are nothing by themselves; they can, therefore, possess no meaning by themselves; or produce by themselves any effect whatsoever. All scholars, from Plato down to Humboldt, who imagine that they can discover certain meanings in certain consonants, have forgotten that neither consonants nor vowels are more than abstractions; and if there is any truth in their observations, as there undoubtedly is, we shall see that this must be explained in a different way. A root, on the contrary, is not, as is sometimes supposed, a mere abstraction or invention of grammarians. We have in many languages to discover them by analysis, no doubt; but no one who has ever disentangled a cluster of words can fail to see that, without granting to roots an independent, and really historical existence, the whole evolution of language would become an impossibility. There are languages, however, such as ancient Chinese, in which almost every word is still a root, and even in so modern a language as Sanskrit, there are still many words which, in outward appearance, are identical with roots.

As roots therefore have two sides, an outside, their sound, and an inside, their meaning, it is quite clear we shall never arrive at a proper understanding of their nature, unless we pay as much attention to their soul as to their body. We must, before all things, have a clear insight into the mechanism of the human mind, if we want to understand the origin of roots; and by placing before you the simplest outline of the mind in the act of knowing, (without considering what concerns emotion and will), I believe I shall be able to lay bare the exact point where the origin of roots becomes, not only intelligible, but inevitable.

It is difficult, at the present moment, to speak of the human mind in any technical language whatsoever without being called to order by some philosopher or other.

According to some, the mind is one and indivisible, and it is the subject-matter only of our consciousness which gives to the acts of the mind the different appearances of feeling, remembering, imagining, knowing, willing, or believing. According to others, mind, as a subject, has no existence whatever, and nothing ought to be spoken of except states of consciousness, some passive, some active, some mixed. I myself have been sharply taken to task for venturing to speak, in this enlightened nineteenth century of ours, of different faculties of the mind, faculties being merely imaginary creations, the illegitimate offspring of mediæval scholasticism.

Now I confess I am amused rather than frightened by such pedantry. Faculty, *facultas*, seems to me so good a word, that, if it did not exist, it ought to be invented, in order to express the different modes of action of what we may still be allowed to call our Mind. It does not commit us to more than if we were to speak of the *facilities* or *agilities* of the mind, and only those who change the forces of nature into gods or demons, would be frightened by the faculties, as green-eyed monsters seated in the dark recesses of our self. I shall, therefore, retain the name of faculty, in spite of its retrogressive appearance; and, in speaking of the act of knowing in the most general, and least technical language, I shall say, that the mind acts in two different ways, or, that its knowledge has two aspects; the one *sensuous* or *intuitional*, sometimes called *preentative*, the other, *rational* or *conceptual*, sometimes called *representative*. I do not mean that the two can be separated or cut asunder, as on a dissecting table, but only that they can be, and ought to be, distinguished.*

Although knowledge is impossible, whether for man or beast, without intuitions, the knowledge of man, as soon as he has left the stage of infancy, i.e. speechlessness, is never intuitional only, but always both intuitional and conceptual. Intuition is knowledge too, but it is not knowledge in the technically defined and restricted sense of the word. It is experience concerned with individual objects only, whether external, as supplied by sense, or

internal, as supplied by emotion or volition.

True knowledge, even in its lowest form, always consists in the combination of an intuition and a concept. When I say, This is a dog, or, This is a tree, or, This is anything else, I must have the concept of a dog or a tree to which I refer this or that intuition, this or that state of consciousness. These concepts are not intuitive. There is no word in the whole of our dictionary, with the exception of proper names, to which anything real or intuitional corresponds. No one ever saw a dog, or a tree; but only this or that dog, a Scotch terrier or a Newfoundland dog; a fir tree, or an oak tree, or an apple tree; and then again, no one ever saw an apple tree, but only a few parts of it, a little of the bark, a few leaves, an apple here and there; and all these again, not as they really are, but one side of them only. Tree, therefore, is a concept, and, as such, can never be seen or perceived by the senses, can never acquire phenomenal or intuitional form. We live in two worlds, the world of sight and the world of thought; and, strange as it may sound, nothing that we think, nothing that we name, nothing that we find in our dictionary, can ever be seen, or heard, or perceived.

Now our concepts and our words are produced by a faculty, or by a mode of mental action, which is not simply a barrier between man and beast, but which creates a new world in which we live. If all animals were blind, and man alone possessed the faculty of seeing, that would not constitute a barrier between man and beast; it would simply be an increase of that intuitional knowledge which we share in common with the beast.

But the faculty of forming concepts is something, not simply beyond, but altogether beside the world of sense. Concepts are formed by what is called the faculty of abstraction, a very good word, as expressing the act of dissolving sensuous intuitions into their constituent parts, divesting each part of its momentary and purely intuitional character, and thus imparting to it that general capacity which enables us to gain general, conceptual, real knowledge.

There is, no doubt, considerable difference of opinion among psychologists as to the exact process by which concepts are formed; but, for the object which we here

* Kant, *Prolegomena*, p. 60. 'Die Summe hiervon ist diese: die Sache der Sinne ist anzuschauen, die des Verstandes zu denken. Denken aber ist Vorstellungen in einem Bewusstsein vereinigen.'

have in view, any theory, from Plato down to Hume, will be acceptable. What is important to us is to see clearly that, as long as we have intuitional knowledge only, as long as we only see, hear, or touch this or that, we cannot predicate, we cannot name, we cannot reason, in the true sense of the word. We can do many things intuitively; perhaps the best things we ever do are done intuitively, and as if by instinct; and for the development of animal instincts, for all the clever things that, we are told, animals do, intuitional knowledge is more than sufficient, and far more important than conceptual knowledge. But, in order to form the simplest judgment, in order to say 'This is green,' we must have acquired the concept of green; we must possess what is generally called the idea of green, with its endless shades and varieties; we must, at least, to speak with Berkeley, 'have made the idea of an individual the representative of a class.' Thus only can we predicate green of any single object which produces in us, besides other impressions, that impression also which we have gathered up with many others in the concept and name of 'green.'

The difference between intuitional and conceptual knowledge has been dwelt on by all philosophers; nor do I know of any philosopher of note who has claimed for animals the possession of conceptual knowledge. Even evolutionist philosophers, who admit no difference in kind whatsoever, and who therefore can look upon human reason as a development only of brute reason, seldom venture so far as to claim for animals the actual possession of conceptual knowledge.

Locke, who can certainly not be suspected of idealistic tendencies, says,* 'If it may be doubted whether beasts compound and enlarge their ideas that way to any degree, this, I think, I may be positive in, that the power of abstracting is not at all in them; and that the having of general ideas is that which puts a perfect distinction betwixt man and brutes, and is an excellency which the faculties of brutes do by no means attain to. For, it is evident, we observe no footsteps in them of making use of general signs for universal ideas; from which we have reason to imagine that they have not the faculty of abstract-

ing or making general ideas, since they have no use of words or any other general signs.'

Few philosophers have studied animals so closely, and expressed their love for them so openly as Schopenhauer. 'Those,' he says, 'who deny understanding to the higher animals, can have very little themselves.' 'It is true,' he says, in another place, 'animals cannot speak and laugh. But the dog, the only real friend of man, has something analogous,—his own peculiar, expressive, good-natured, and thoroughly honest wagging of the tail. How far better is this natural greeting than the bows and scrapings and grinnings of men! How much does it surpass in sincerity, for the present at least, all other assurances of friendship and devotion? How could we endure the endless deceits, tricks and frauds of men, if there were not dogs into whose honest faces one may look without mistrust.'

The same philosopher assigns to animals both memory and imagination (*Phantasie*). He quotes the case of a puppy, unwilling to jump from a table, as a proof that the category of causality belongs to animals also. But he is too expert a philosopher to allow himself to be carried away by fanciful interpretations of doubtful appearances; and when he explains the formation of general notions as the peculiar work of reason, he states, without any hesitation or qualification, 'that it is this function which explains all those facts which distinguish the life of men from the life of animals.'*

I have said again and again that according to the strict rules of positive philosophy, we have no right either to assert or to deny anything with reference to the so-called mind of animals. But to those who think that philosophy may trust to anthropomorphic analogies, and that at least no counter arguments can be brought forward against their assertions that animals generalise, form concepts, and use them for the purpose of reasoning, exactly as we do, I may be allowed to propose at least two cases for explanation. They are selected out of a large mass of stories which have lately been collected in illustration of the animal intellect, and they possess at least

* *Lectures on the Science of Language*, I. 405.

* Frauenstädt, *Schopenhauer-Lexicon*, s.v. *Begriff*.

this advantage, that they are both told by truly scientific observers.

The first is taken from Autenrieth, in his *Ansichten über Natur und Seelenleben*, published in 1836.

'The grub of the *Nachtpfauenaug* spins, at the upper end of its case, a double roof of stiff bristles, held together at the end by very fine threads. This roof opens through a very light pressure from within, but offers a strong resistance to any pressure from without. If the grub acted according to judgment and reason, it would, according to human ideas, have had to consider as follows:—That it might possibly become a chrysalis, and be exposed to all sorts of accidents without any chance of escape, unless it took sufficient precautions; that it would rise from the chrysalis as a butterfly, without having the organs and power to break the covering which it had spun as a grub, or without being able, like other butterflies, to emit a liquid capable of dissolving silky threads; that, therefore, unless it had, while a grub, made preparations for an easy exit from its prison, it would suffer in it a premature death. While engaged in building such a prison the grub ought to have perceived clearly that, in order to escape hereafter as a butterfly, it would have to make a roof so constructed that it should protect from without, but open easily from within, and that this could be effected by means of stiff silky bristles, converging in the middle, but otherwise free. It would also have to know beforehand that, for that purpose, the same silky substance had to be used out of which the whole covering was built up, only with greater art. And yet it could not have been instructed in this by its parents, because they were dead before it escaped from its egg. Nor could it have learnt it by habit and experience, for it performs this work of art once only in its life; nor by imitation, for it does not live in society. Its understanding, too, could be but little cultivated during its grub-life, for it does nothing but creep about on the shrub on which it first saw the light, eat its leaves, cling to it with its feet, so as not to fall to the ground, and hide beneath a leaf, so as not to be wetted by the rain. To shake off by involuntary contortions its old skin whenever it became uncomfortable, was the whole of its life, the whole of its reasoning, before it began to spin its marvellous shroud.'

The other case is an experiment very ingeniously contrived, with a view of discovering traces of generalisation in the ordinary habits of animals. The experiment was made by Mr. Amtsberg, of Stralsund, and described by Dr. Möbius, Professor of Zoology at Kiel.*

'A pike, who swallowed all small fishes which were put into his aquarium, was separated from them by a pane of glass, so that, whenever he tried to pounce on them, he struck his gills against the glass, and sometimes so violently that he remained lying on his back, like dead. He recovered, however, and repeated his onslaughts, till they became rarer and rarer, and at last, after three months, ceased altogether. After having been in solitary confinement for six months, the pane of glass was removed from the aquarium, so that the pike could again roam about freely among the other fishes. He at once swam towards them, but he never touched any one of them, but always halted at a respectful distance of about an inch, and was satisfied to share with the rest the meat that was thrown into the aquarium. He had therefore been trained so as not to attack the other fishes which he knew as inhabitants of the same tank. As soon, however, as a strange fish was thrown into the aquarium, the pike in nowise respected him, but swallowed him at once. After he had done this forty times, all the time respecting the old companions of his imprisonment, he had to be removed from the aquarium on account of his large size.'

'The training of this pike,' as Professor Möbius remarks, 'was not, therefore, based on judgment; it consisted only in the establishment of a certain direction of will, in consequence of uniformly recurrent sensuous impressions. The merciful treatment of the fishes which were familiar to him, or, as some would say, which he knew, shows only that the pike acted without reflection. Their view provoked in him, no doubt, the natural desire to swallow them, but it evoked at the same time the recollection of the pain which he had suffered on their account, and the sad impression that it was impossible to reach the prey

* *Schriften des Naturwissenschaftlichen Vereins für Schleswig-Holstein*. Separatabdruck. Kiel, 1873.

which he so much desired. These impressions acquired a greater power than his voracious instinct, and repressed it at least for a time. The same sensuous impression, proceeding from the same fishes, was always in his soul the beginning of the same series of psychic acts. He could not help repeating this series, like a machine, but like a machine with a soul, which has this advantage over mechanical machines, that it can adapt its work to unforeseen circumstances, while a mechanical machine can not. The pane of glass was to the organism of the pike one of these unforeseen circumstances.*

Truly scientific observations and experiments, like the two here mentioned, will serve at least to show how much can be achieved by purely intuitional knowledge, possessed in common by men and animals, and without the help of that conceptual knowledge which I regard as the exclusive property of man.

With us, every element of knowledge, even the simplest impression of the senses, has been so completely conceptualised, that it is almost impossible for us to imagine intuitional without conceptual knowledge. It is not always remarked that we men have almost entirely left the sphere of purely intuitional knowledge, and that the world in which we live and move and have our being is a world of concepts; a world which we have created ourselves, and which, without us, without the spectators in the theatre, would vanish into nothing.

What do we mean when we say we know a thing? A child which for the first time in his life sees an elephant, may stare at the huge beast, may fix his eyes on its trunk and tusks, may touch its skin, and walk round the monster so as to measure it from every side. While this is going on the child sees the beast, feels it, measures it; but we should never say the first time the child sees an elephant, that he knows it.

When the child sees the same elephant, or another elephant, a second time, and recognises the animal as the same, or *nearly* the same which he saw before, then, for the first time, we say that the child knows the elephant. This is knowledge in its lowest and crudest form. It is no more than a connecting of a present with a past intuition or phantasm; it is, properly speaking, *remembering* only, and not yet *cognition*. The animal intellect, according to the ordinary

interpretation, would go as far as this, but no farther.

But now let us take, not exactly a child, but a boy who for the first time sees an elephant. He, too, does not know the elephant, but he knows that what he sees for the first time, is an *animal*. What does that mean? It means that the boy possesses the concept of a living and breathing being, different from man, and that he recognises this general concept in the elephant before him. Here, too, cognition takes place by means of *recognition*, but what is recognised is not connected with a former intuition, but with a concept, the concept of animal.*

Now, an animal, as such, has no actual existence. A boy may have seen dogs, cats, and mice, but never an animal in general. The concept of animal is therefore of man's own making, and its only object is to enable man to know.

But now let us make a further step, and instead of a child or a boy, take a young man who knows the elephant, not only as what he has seen in the Zoological Garden, not only as an animal, but scientifically, as we call it, as a vertebrate. What is the difference between his knowledge and that of the boy? Simply this, that he has formed a new concept—that of the vertebrate—comprehending less than the concept of animal, but being more definite, more accurate, and therefore more useful for knowing one class of animals from another. These scientific concepts can be made narrower and narrower, more and more accurate and scientific, till at last, after having classed the elephant as a vertebrate, a mammal, a pachydermatous animal, and a proboscideate, we leave the purely physical classification, and branching off into metaphysical language, call the elephant a living object, a material object, an object in general. In this, and in no other way, do we gain knowledge, whether scientific or unscientific; and if we should ever meet with an intuition for which we have no concept whatsoever, not even that of material object, then that intuition would be inconceivable, and utterly unknowable; it would transcend the

* When the Romans first became acquainted with the elephant, they used the concept of *ex* for the conception of the new animal, and called it *Box Luca*. In the same manner savage tribes, who had never seen horses, called horses large pigs.

limits of our knowledge.* The whole of what we call the human intellect consists of these concepts, a kind of net for catching intuitional knowledge, which becomes larger and stronger with every draught that is brought to land. Wonderful as the human intellect may appear, when we look upon it as a whole, its nature is extremely simple. It separates and combines, it destroys and builds up, it throws together at haphazard or classifies with the minutest care, the materials supplied by the senses, and it is for this very reason, because it intermixes, or interlaces, or interlinks, that it was called the *Inter-lect*, softened into *Intellect*. The more concepts we possess, the larger is our knowledge; the more carefully we handle or interlink our concepts, the more closely do we reason; and the more freely we can tumble out the contents of these pigeon-holes, and throw them together, the more startling is our power of imagination.

We now come to the next point, How is this work of the human intellect, the forming and handling of concepts, carried on? Are concepts possible, or, at least, are concepts ever realised without some outward form or body? I say decidedly, No. If the Science of Language has proved anything, it has proved that conceptual or discursive thought can be carried on in words only. *There is no thought without words, as little as there are words without thought.* We can, by abstraction, distinguish between words and thought, as the Greeks did when they spoke of inward (*ἐνδοξικός*) and outward (*προφορικός*) Logos, but we can never separate the two without destroying both. If I may explain my meaning by a homely illustration, it is like peeling an orange. We can peel an orange, and put the skin on one side and the flesh on the other; and we can peel language, and put the words on one side and the thought or meanings on the other. But we never find in nature an orange without peel, nor peel without an orange; nor do we ever find in nature thought without words, or words without thought.

It is curious, however, to observe how determinately this conclusion has been resisted. It is considered humiliating that

what is most spiritual in us, our thoughts, should be dependent on such miserable crutches as words are supposed to be. But words are by no means such miserable crutches. They are the very limbs, aye, they are the very wings of thought. We do not complain that we cannot move without legs. Why then should we consider it humiliating that we cannot think without words?

The most ordinary objection to this view of thought and language is, that if thought were dependent on words the deaf and dumb would be without conceptual thought altogether. But, according to those who have best studied this subject, it is perfectly true* that deaf and dumb persons, if left entirely to themselves, have no concepts, except such as can be expressed by less perfect symbols—and that it is only by being taught that they acquire some kind of conceptual thought and language. Were this otherwise, however, we, at all events, could know nothing of their concepts, except through some kind of language, intelligible both to them and to ourselves, while, according to the premiss, the deaf and dumb are supposed to be without language altogether.

Another and more powerful objection is, that the invention of language involves the previous existence of concepts, because we can only feel impelled to express what already exists in our mind. This objection, however, has been met by showing that in the usual sense of that word language was never invented, and that here, as in all other cases, though we may say that, logically, the function is the antecedent of the organ, yet in reality organ and function always presuppose each other, and cannot exist the one without the other.

A third objection is, that language, in the usual sense of the word, is not the only organ of conceptual thought. Now this is perfectly true, and has never been questioned. Besides the phonetic symbols of language, there are other less perfect symbols of thought, which are rightly called *ideographic*. We can form the concept of 'three' without any spoken word, by simply holding up three fingers. In the same manner the hand might stand for *five*, both hands for *ten*, hands and feet for *twenty*. This is how people who

* See the whole of this subject treated most excellently by Mr. Herbert Spencer, *First Principles*, p. 79.

* *Lectures on the Science of Language*, II. 74, note.

possessed no organs of speech, would speak; this is how the deaf and dumb *do* speak.* Three fingers are as good as three strokes, three strokes are as good as three clicks of the tongue, three clicks of the tongue are as good as the sound *three*, or *trois*, or *drei*, or *shalosh* in Hebrew, or *san* in Chinese. But all these are signs; and being signs, symbols or embodiments of concepts, they fall under the general category of *logos* or language. 'As a matter of necessity,' Professor Mansel remarked, 'men must think by symbols; as a matter of fact, they do think by language.†'

Nothing, however, seems of any avail to convince our opponents that they cannot do what they imagine they have been doing all their lives, viz., thinking silently, or without words. Some of the Polynesian savages would seem to have a far truer insight into the nature of thought, for their expression for thinking is 'speaking in the stomach.' But modern philosophers imagine they are wiser than these primitive savages; and in order to put an end to all controversy, they have had recourse even to the test of experiment. I shall try to describe these experiments as well as I can, and if my description seems incredible, it is certainly not my fault. As far as I can follow those who have tried the experiment, they begin by shutting their eyes and ears, and holding their breath. They then sink into unconsciousness, and when all is dark and still, they try their new art of ventriloquism, thinking thoughts without words. They begin with a very simple case. They want to conjure up the thought of a . . . I must not say what, for it is to be a nameless thing, and every time that its name rises, it is gulped down and ordered to vanish. However, in confidence, I may whisper that they want to conjure up the thought of a—*dog*.

Now the word *dog* is determinately suppressed; hound, cur, and all the rest, too, are ordered away. Then begins the work. 'Rise up, thou quadruped with ears and wagging tail!' But alas! the charm is already broken! Quadruped,

ears, tail, wagging, all are words which cannot be admitted.

Silence is restored, and a new effort begins. This time there is to be nothing about quadruped, or animal, or hairy brute; the inner consciousness sinks lower, and at last there rises a being, to be developed gradually and insensibly into a dog. But, alas! 'being,' too, is a word, and as soon as it is whispered, all the potential dogs vanish into nothing.

A last appeal, however, remains. No animal, no being, nothing is to be talked of; complete silence is restored; no breath is drawn. There is a something coming near, the ghost appears, when suddenly he is greeted by the recognising self with Bow-wow! bow-wow! Then at last, the effort is given up as hopeless, the eyes are opened, the ears unstopped, the breath is allowed to rise again, and as soon as the word *dog* is uttered, the ghost appears, the concept is there, we know what we mean, we think and say *Dog*. Let any one try to think without words, and, if he is honest, he will confess that the process which he goes through is somewhat like the one I have just tried to describe.

I believe that there would have been far less unwillingness to admit that conceptual thought is impossible without language, if people had not been frightened by the recollection of the old controversies between Nominalism and Realism. But the Science of Language has nothing to do with either Nominalism or Realism. It does not teach that concepts are nothing but words, but only that concepts are nothing without words, and words nothing without concepts. If Condillac maintained that science is but a well-made language, he was right, but only because he assigned to language a much fuller meaning than it usually has. Again, when Horne Tooke said that the business of the mind extended no further than to receive impressions, that what are called its operations are merely the operations of language, he too was right, only that he used mind where we generally use sense, and language where we use *λόγος* or reason. I quoted on a former occasion* the words of Schelling and Hegel on the indivisibility of thought and language; I may add to-day the testimony of one who looked upon the philosophy of Schelling

* See some excellent remarks on gesture-language by Mr. E. B. Tylor, in the *Fortnightly Review*, 1866, p. 544.

† *North British Review*, 1850.

* *Lectures on the Science of Language*, II. p. 77.

and Hegel as *verba præterquam nihil*, and who yet fully supports their view on this point.

'That language (verbal or other) is inseparable from thought, is rendered morally certain by the impossibility under which we all labor of forming universal notions without the aid of voluntary symbols. The instant we advance beyond the perception of that which is present *now* and *here*, our knowledge can be only representative; as soon as we rise above the individual object, our representative sign must be arbitrary. The phantasms of imagination may have more or less resemblance to the objects of sense; but they bear that resemblance solely by virtue of being, like those objects themselves, individual. I may recall to mind, with more or less vividness, the features of an absent friend, as I may paint his portrait with more or less accuracy; but the likeness in neither case ceases to be the individual representation of an individual man. But my conception of a man in general can attain universality only by surrendering resemblance; it becomes the representative of all mankind only because it has no special likeness to any one man.*

But this is not all. The Science of Language teaches us not only that there can be no concept without a word, but that every word of our language, (with the exception of purely interjectional and imitative words) is based on a concept.

Let us clear the ground a little before we proceed. We know,† first of all, that all words which express abstract ideas are borrowed from some material appearance. '*Right* means straight; *wrong* means twisted. *Spirit* primarily means wind; *transgression*, the crossing of a line; *supercilious*, the raising of the eyebrow.'

We know that *anima* in Latin means the wind, the breath of living beings, life, and lastly, soul. Sallust says, *Ingenii facinora, sicut anima, immortalia sunt*, the works of genius are immortal, like the soul. We may therefore say that in *anima*, the French *âme*, the original concept is breathing. But we have now to advance a step farther into that earlier stratum of language and thought where we want to find

out, not only the original concept of *anima*, soul, but the original concept of *anima*, wind. Why was it, and how was it, that the wind was ever called *anima*? In fact, why has any word in Sanskrit, Greek and Latin, just that form and that meaning which it has? That is what we want to know if, as scholars, we speculate on the origin of language.

The answer which the Science of Language gives is this: Take any word you like in any language which has a past, and you will invariably find that it is based on a concept. The process of names-giving was, in fact, the first attempt at classification, very weak, very unscientific, no doubt, but for that very reason all the more interesting for watching the pre-historic growth of the human mind. Thus, in the old Aryan name for horse, Sansk., *asva*, equus, ἵππος, Old Saxon, *ehu*, we discover nothing like the neighing of a horse, but we discover the concept of quickness embodied in the root AK, to be sharp, to be quick, from which we have likewise the names for mental quickness, such as *acutus*. We therefore see here, not in theory, but by actual historical evidence, that the concept of quickness existed, *had been fully elaborated first*, and that through it the conceptional, as distinct from the purely intuitional knowledge of horse was realised. That name, the quick, might have been applied to many other animals too; but having been repeatedly applied to horses, it became for that very reason unfit for any other purposes. Serpents, for instance, are quick enough when they fall on their prey, but their name was formed from another concept, that of squeezing or throttling. They were called *ahi* in Sanskrit; ἔχις in Greek; *anguis* in Latin, all from a root AH, to squeeze; or *sarpa*, in Latin serpens, from a root SARP, to creep, to go.

The goose is called *hamsa-s* in Sanskrit; *gós* (for *gans*) in Anglo-Saxon; *'anser* (for *ganser*) in Latin. The root from which these words are derived was GHA, to open the mouth, to gape, modified to GHAN in χαίρω, and to GHANS. The Greek χήν, χηνός, comes from the same root as its simpler form GHAN. The goose was, therefore, originally conceived as the gaping, or hissing bird, and hence its name.

The wolf was called *varka-s*, from a root VARK, to tear, and the same word

* *Letters, Lectures, and Reviews*, by H. L. Mansel, p. 8.

† See Emerson, *Complete Works*, Vol. 149.

appears as the name of the wolf in Sanskrit as *vrika-s*; in Greek as *Φλύκο-ς*; in Latin as *Lupu-s* (*vulpus*); in Gothic as *vulf-s*.

The pig was called *sus*, *ῥς*; Old High-German, *sū*; Gothic *svein*: all from a root *SU*, to beget; the sow being considered the most prolific of domestic animals. The Sanskrit *sūkara-s*, lit. the su-maker or grunter, is clearly a play of popular etymology.

By the same simple process, class after class of animals was separated from the crude mass of intuitional knowledge; birds, fishes, worms, trees and plants, stones and metals, were all distinguished by conceptual names, and man, too, received his proper name, either as the earth-born (*homo*), or as the dying creature (*mortalis*), or as the measurer and thinker (*manus*).

Birds were called in Sanskrit *vi*, plural, *vayas*; the Latin, *avis*; the Greek *oi* in *oi-ωνός*, lit. a large bird. The name meant probably at first no more than the movers, from the root *vi*, which also yielded *vāyu-s*, a name for the wind in Sanskrit and Zend;* but it soon answered the purpose of distinguishing the flying animals from all others. As other distinguishing qualities of birds came to be observed, they, too, found expression in language. Thus we have in Sanskrit *pakshin*, possessed of wings, from *paksha*, wing;† *patrin*, feathered, from *patra-m*, feather; *pata-trin*, feathered, from *patatra-m*, feather; *andaga-s*, egg-born or oviparous; *khaga-s*, sky-goer, &c. In Greek we have besides *oi-ωνός*, *δρνις*, *δρνιθος*, it may be from a root *AR*, to rise; *πτηνόν*, the flying animal. In Latin we find *volucris*, flying; *ales*, *alitis*, winged, &c.

For fish there is no name that could be claimed for the early Aryan period; and the names which occur in Sanskrit, Greek, and Latin, *matsya*, *ἰχθύς*, *piscis*, do not clearly reveal their predicative power.

The name for worm in Sanskrit is *kṛmi-s*; in Lithuanian, *kirmi-s*, both of which can be derived from the root *KRAM*, to walk, to roam. The Latin *vermis*, and the Gothic *vaurm-s*, come probably from the same source, but the

Greek *ἔλμυς* must be derived from the root *VAL*, to twist.

In this manner, and in no other, our concepts and our names, our intellect and our language, were formed together. Some single feature was fixed upon as characteristic of an object, or of a class of objects, a root was there which expressed that feature, and by the addition of a pronominal base, a compound was formed, meaning originally whatever the roots expresses, substantiated in a certain place, predicated of a certain object. Thus the root *yudh*, to fight, comes to mean by the mere addition of a pronominal base, commonly called the termination of the nominative singular, the fight, the fighter, and the instrument of fighting. This ambiguity was afterwards removed by the introduction of so-called suffixes, by which a distinction was made between such words as *yudh-i*, the act of fighting; *yudh-ma*, a fighter; (*ā*)*yudh-a*, a weapon. In these words we say that *yudh* appears as the root; and how real that root is we can easily see by its frequent occurrence, not only as a root, but as a perfect word in the oldest Sanskrit, that of the Veda. We find there* the locative *yudh-i*, in the battle; the instrumental *yudh-ā*, with a weapon; the locative plural, *yut-su*, among fighters; just as we find *yu-yudh-e*, he has fought, and *ayuddha*, he fought, &c. The difference between the nominal and verbal compounds is simply this, that the former express fighting-there, fighting-he, fighting-one, fighter: the latter fighting-I, fighting-thou, fighting-he.

Without entering further into the niceties of these grammatical compositions, I only wish to point out here, first, that the whole of our language, from the simplest word to the most complex paulopost future, is conceptual; secondly, that language pre-supposes the formation of concepts; and thirdly, that all such concepts are embodied in roots. The two problems, therefore, that of the elaboration of concepts, and that of the elaboration of roots, become in reality one, and must be solved together, if they are to be solved at all.

Now, whatever difference of opinion there may be among philosophers as to the real origin of concepts, there can be

* See Justi, *Handbuch*, s. v. VI. Pictet's statement (1, 509) that *vi* means in Zend fish also, is unfounded.

† Benfey compares *pakshin* with Goth. *fugl*, fowl.

* M. M. *Translation of Rig-Veda*, vol. I. p. 202.

none as to the origin of roots. It is true these roots are frequently spoken of as something mysterious, but this mystery, like many other mysteries, would seem to be of our own making.

Let us see, first of all, what roots are not. Roots are not either interjections or imitations. Interjections such as pooh, and imitations such as bow-wow, are the very opposite of roots. *They are vague and varying in sound, and special in meaning; while roots are definite in sound, but general in meaning.* Interjections, however, and imitations are the only possible materials out of which human language could be framed; and the real problem, therefore, is this, how, starting with interjections and imitations, can we ever arrive at roots?

Interjections and imitations deserve a much more careful study than they have hitherto received, even from those who imagine that our words can be derived straight from interjections and imitations.

Nothing seems at first sight so easy, yet nothing is in reality so difficult as to represent either the sounds by which our own feelings manifest themselves, or the sounds of nature, such as the notes of birds, the howling of the wind, the falling of a stone, by articulate sounds. From the very beginning the process must have given rise to an infinite variety of imitations, many of which it would be almost impossible to recognise or understand, without traditional or social helps. Even in our times and among civilised nations, with languages fixed by thousands of years of tradition, usage, literature, and grammar, the expressions for the most ordinary feelings vary considerably. The Frenchman, as an observant traveller has remarked, expresses surprise by *Ah!*, the Englishman by *Oh!*, the German by *Ih!* The Frenchman says, *Ah, c'est magnifique*; the Englishman, *Oh, that is capital*; the German, *Ih, das ist prächtig*. Nor do these interjections express exactly the same feeling; they all express surprise, no doubt, but the surprise peculiar to each of these three national characters. The surprise of the Frenchman is simple and open; in saying *Ah!* he is all agape, *il est ébahi*. The surprise of the Englishman is restrained and deep; in saying *Oh!* he swallows half of his admiration. The surprise of the German is high and sharp; in saying *Ih!* he almost chirps with delight.

In Chinese surprise is expressed by *hu*

and *fu*, applause by *tsai*, misery by *i*, contempt by *ai*, pain by *uhu*.

Frequently it is as difficult to define the exact sound as the exact meaning of these interjections, so that in an Italian grammar no less than twenty significations are ascribed to the interjections *ah!* *ahi!* With a little more imagination quite as many and even more meanings might be detected in the English *Ah!*

Some scholars have brought themselves to imagine that there is some hidden connection between the letter *N* and the concept of negation. Yet, all that we have a right to say is that *No* may express negation, but not, that it must. As a matter of fact, there are languages in which *no* means *yes*.

This uncertainty becomes still more startling when we come to examine the way in which the sounds uttered by animals are imitated in different languages. I shall give a few specimens from Chinese. What would you guess to be the meaning of *kiao kiao*? It is meant for the cry of the cock; *kao kao* stands for the cry of the wild goose; *siao siao* is meant to represent the sound of rain and wind; *lin lin* of rolling carriages; *tsiang tsiang*, of chains; *kan kan*, of drums, and so on.

This subject is in reality endless; and the more we compare the representations of the cries of animals in different languages, the more shall we see that a comparative grammar of them is almost impossible.

I shall give you the imitations which occur in German of the cries of some animals, chiefly birds, but I doubt whether you will easily recognise them.

What is *sir sir*? It is meant for the thrush. What is *quak quak*? The duck, no doubt; but in other places the guttural has been changed into the labial (what scholars call labialism), and the sound uttered by the duck is rendered by *pak pak*. Thus the cry of the owl is represented in German, not only by *uhú, uhú*, but likewise by *schu hu hu hu*, and by *pu pu*; in Latin by *tu tu*, in Greek, by *κυκαβάν*; thus showing us, first of all, Dentalism, change of initial guttural into dental; then Labialism, change of guttural into labial; then Zetacism and assibilation, change of guttural or dental into *sh*; lastly, aphæresis of initial guttural, as in *uhu* for *kuhu*!

The frog in German says *quak* and *kik*, in Greek *βρεκεκὲξ κοῦξ κοῦξ*.

Pink, in German, is the note of the finch.

Ga ga ga, Dadado, drussla, drussla, is meant for goose; in Chinese, the wild goose says *kao kao*; in Mongolian, *kôr kôr*.

The cock in German says *kikeriki*, in Chinese, as we saw, *kiao kiao*, in Mongolian, *dchor dchor*. The German hen, if not otherwise occupied, says *gack gack*; while laying eggs, she says *glu glu glu*; when calling her chicks, *tuck tuck tuck*; and yet, when she is called herself, she is addressed by *putt putt putt*, and her little chicks by *bi bi*.

The dog says *wau wau* and *bau bau*, sometimes *hu hu* and *kliff klaff*. When very angry and growling, he says *r*, which the Romans called the dog letter, the *litera canina*.

I am afraid there is no time for more; but I must just add one more German phonograph, that of the nightingale: It is, *Zückiüt, zückiüt, zückiüt! Zidiwik, zidiwik zidiwik! Zifzigo, zifzigo, zifzigo! tididon, zi zi! Tandaradei!* A great phonetic artist, not satisfied with these popular representations of the note of the nightingale, devoted many days and nights to a careful study of this subject, and the precious result at which he arrived was this:

Deilidurei faledirannurei lidundei faladaritlurei!

It would be easy to produce similar words from other languages in order to show, first, how difficult and fanciful all imitations of inarticulate by means of articulate sounds must be; secondly, how, after all, every one of those imitations expresses and can express a single impression only. One might imagine the possibility of a language consisting altogether of such imitative sounds. The combination of two such imitative sounds, for instance, as *bow wow, pooh!* might form a sentence to convey the meaning that a certain dog was harmless, that he might bark but would not bite; but, as a matter of fact, no tribe even of the lowest savages has yet been discovered employing no more than such utterances.

The problem, therefore, which we have to solve, is this—How, if we start with such interjections and imitations, can we ever arrive at the real elements of language, the residue of all scientific analysis—I mean *the Roots*. If we can account for this transition of interjections and imitations into roots, we have done all that the most exacting sceptic can demand. Analysis of all given language leads us back to roots;

experience gives us interjections and imitations as the only conceivable beginning of human utterance. If the two can be united, the problem is solved.

Let us go back once more to the first beginning of conceptual knowledge, for it is here, if anywhere, that the key must be found. The simplest concept is the dual, when we count two things as one. This dual concept can be formed in two ways, either by combination, or by abstraction.

If we have a word for *father* and a word for *mother*, then in order to express the concept of *parents*, we may combine the two. Thus, we actually find in Sanskrit, *pitar*, father, *mātar*, mother, *mātāpitarau*, mother and father, i.e. parents. The same in Chinese.* Father is *fú*, mother *mù*; *fú-mù*, parents. Again, a biped with feathers is '*kin*' in Chinese; a quadruped with hair is *sheu*; animals in general are called '*kin-sheu*'. Light is '*king*', heavy *éung*; '*king-éung*' is used to express the concept of weight.

It is clear, however, that this process of combining single words could not be carried on *ad infinitum*: otherwise life might become too short for finishing one single sentence. We may call our parents father and mother, *fú-mù*, but how should we call our family?

Here, the faculty of abstraction comes to our help. A very simple case will show us how the work of thought and speech could be abbreviated. As long as people talk of sheep as sheep, and of cows as cows, they might very well indicate the former by *baa*, the latter by *moo*. But when, for the first time a want was felt of speaking of a flock, neither *baa* nor *moo* would do. As long as there were only sheep and cows, a combination of *baa* and *moo* might have answered, but when more animals were included, their separate sounds were those most to be avoided, because they would have conveyed a meaning which was not intended.

So, again, it was easy enough to imitate the cries of the cuckoo and the cock, and and the sounds *cuckoo* and *cock* might be used as the phonetic signs of these two birds. But if a phonetic sign was required for the singing of more birds, or it may be, of all possible birds, every imitation of a special note became not only useless, but dangerous; and nothing but a compromise,

* Endlicher, *Chinesische Grammatik*, p. 133.

nothing but a filing down of the sharp corners of those imitative sounds, would answer the new purpose.

This phonetic process of what I call the *Friction* or *Despecialisation* of imitative sounds runs exactly parallel with the process of the generalisation of our impressions, and through this process alone are we able to understand how, after a long struggle, the uncertain phonetic imitations of special impressions became the definite phonetic representations of general concepts.

Thus, there must have been many imitations of the falling of stones, trees, leaves, rivers, rain, and hail, but in the end they were all combined in the simple root PAT, expressive of quick movement, whether in falling, flying, or running. By giving up all that could remind the hearer of any special sound of rushing objects, the root PAT became fitted as the sign of the general concept of quick movement, and from this concept and this root sprang afterwards a number of words in Sanskrit, Greek, Latin, and other Aryan languages. In Sanskrit we find *patati*, he flies, he soars, he falls; *pata-s*, flight; *pataga-s*, and *patanga-s*, a bird, also a grasshopper; *patatra-m*, a wing; *patāka-s*, a flag; *pattra-m*, a wing, a leaf of a flower, a leaf of paper, a letter; *patrin*, a bird; *pāta-s*, falling, happening, accident, also fall, in the sense of sin, in which sense *pātaka-m* is more frequently used; possibly even *pātāla*, the Indian name for hell.

In Greek we find *πέτομαι*, I fly; *πετηνός*, winged; *ὑπερέτης*, quickly flying or running; *ποτή*, flight; *περόν* and *πέρυξ*, feather, wing, instead of *π(ε)τερόν*, *π(ε)τέρυξ*; also *ποταμός*, river. Again *πίπτω*, I fall, instead of *πιπ(έ)τω*; *πότμος*, fall, accident, fate; *πτῶσις*, fall, case, used first in a philosophical, then in a grammatical sense. In Latin we find from the same root, *peto*, to fall on, to assail; to make for, to seek, to demand, with its many derivative applications; *im-petus*, on-slaught; *præpes*, quickly flying; also *penna*, feather, the old *pesna*, for *pet-na*.

The number of words derived from this root in modern languages seems endless. In English alone we have *petition*, *petulance*, *appetite*, *competition*, *repetition*; then *pen*, *pinnacle*, *feather*, and many more, all to be traced back, step by step, and letter by letter, to the old root PAT, and to no other root, nor to any of the imitative sounds of falling, out of which PAT was

selected, or out of which PAT by a higher degree of fitness struggled into life and fixity.

In one of my Lectures on the Science of Language, I examined in full detail the immense progeny of the root MAR, to grind, to break. This root itself must be looked upon as tuned down from innumerable imitations of the sounds of breaking, crushing, crunching, crashing, smashing, mashing, cracking, creaking, rattling and clattering, mawling and marring, till at last, after removing all that seemed too special, there remained the smooth and manageable Aryan root of MAR.

If we once clearly understand this natural, nay this necessary process of the mutual friction of imitative sounds, representing outwardly the process of generalisation of single intuitions and the origin of abstract concepts, we are prepared to find what we actually do find in the further development of roots. Some roots, being useful for special purposes, retained something of their sharper outline, and became popular on that very account; while others that had reached the highest point of generalisation, and were therefore used most frequently, supplanted parallel roots of a more special meaning.

Again, in this struggle for generalisation, many roots must have crossed each other, and the *summum genus* of going, moving, doing, sounding, must have been reached again and again from very different starting-points.

From this point of view nothing is easier to understand than that, though beginning with the same materials, families, villages, tribes and races, would, after a very short separation, if it took place during the Radical Period, have become of necessity mutually unintelligible. Not only different dialects, and different languages, but different families of language with different roots for their supply, could thus have sprung from one common source; and to deny the possibility of a common origin of the Aryan and Semitic families of speech, from this point of view, would be simply absurd.

Another question which has frequently been asked, viz. whether what are commonly called secondary and tertiary roots were derived from primary roots, or whether they are remnants of earlier stages in the development of language, does not admit of an equally conclusive answer. If

we meet with three such roots as *sar*, to go; *sarp*, to creep; *sarg*, to let go, we have a right to look upon the additional letters *p* and *g* as modificatory elements, and upon the roots formed by them, as derived and secondary. This is particularly the case when these additional letters are used systematically, as, for instance, in forming causative, desiderative, inchoative, and intensive roots.

But there are other cases where we must admit parallel roots, representing to us independent attempts of fixing general concepts. If one root was possible, so were others, similar in sound and meaning, varieties, not by genealogical succession, but by collateral development,—a process which has of late been far too much neglected, not only in the Science of Language, but in many other branches of Natural Science.

After what I have now explained, it will, I hope, have become clear to those who may have listened here to my Lectures on the Science of Language, that what I formerly called *Roots*, or *Phonetic Types*, are indeed the ultimate facts in the analysis of language, but that, from a higher and philosophical point of view, they admit of a perfectly intelligible explanation. They represent the *nuclei* formed in the chaos of interjectional or imitative sounds; the fixed centres which become settled in the *vortex* of natural selection. The scholar begins and ends with these phonetic types; or, if he ignores them, and traces words back to the cries of animals, or the interjections of men, he does so at his own peril. The philosopher goes beyond, and he discovers in the line which separates rational from emotional language,—conceptual from intuitional knowledge,—he discovers in the roots of all languages, the true barrier between Man and Beast. I do not ask, like others, for a persuasive appeal from the throat of a nightingale, or for a gruff remonstrance from a gorilla, before I admit that they may be among the ancestors of the human race. I do not wait even, like Professor Schleicher, till I hear a pig say, 'I am a pig,' before I grant that the same blood may run through his veins and our own, and—what is far more important—that his thoughts, may run through the same conceptual channels as our own. Show me only one single root in the language of animals, such as *AK*, to be sharp and quick; and from it two such

derivatives as *asva*, the quick one—the horse—and *acutus*, sharp or quick witted; nay, show me one animal that has the power of forming roots, that can put one and one together, and realise the simplest dual concept; show me one animal that can think and say *Two*, and I should say that, as far as language is concerned, we cannot oppose Mr. Darwin's argument, and that man has, or at least may have been, developed from some lower animal. I do not deny that there is some force in Mr. Darwin's remark, that both man and monkey are born without language; but I consider that the real problem which this remark places before us is to find out why a man always learns to speak, a monkey never. If, instead of this, we say that, under favorable circumstances, an unknown kind of monkey may have learnt to speak, and thus, through his descendants, have become what he is now, viz. man, we deal in fairy-stories, but not in scientific research. Mr. Darwin says, 'Language is certainly not a true instinct, as every language has to be learnt.' Yes, every language has to be learnt, but language itself, never. It matters little whether we call language in this sense an instinct, a gift, a talent, a faculty, or the *proprium* of the species Man. Certain it is, that neither the power of language, nor the conditions under which alone language can exist, are to be discovered in any of the lower animals.

There is one class of philosophers who, in the interest, as they believe, of freedom of inquiry, lay great stress on admitting, if not the reality, at least the possibility or conceivableness of the development of man from a lower animal. What is conceivable, depends, however, quite as much on the conceiver as on the conceived. Nor do I see what, in our case, we should gain by saying, that the transition of a lower animal into man is conceivable, considering that the very opposite, too, viz., the non-transition of any lower animal into man is equally conceivable, and, in addition to this, at least as far as our experience goes, is real. Surely there is something in this word *real*; there is some weight to be attached in every argument to experience, as far as it goes. There are hundreds and thousands of things in nature where we see no reason why they should be what they are, and where we may easily imagine that they

might be different from what they are. Why should not trees grow into the sky? why should not birds fly up to the moon? To say that they would die, is saying nothing, at least as far as evolutionist philosophers are concerned; for why should they alone not possess the power of adapting themselves to new environments?

But what should we gain by saying that all such things are conceivable? Would it not be far more useful to try to discover why there are such hard and fast lines in nature; why certain creatures never pass certain limits: why man, for instance, was enabled, or if you like, prompted and tempted, to generalise, to form a world of concepts or roots; to derive from these roots, names of new concepts, to elaborate, in fact, language, and then to make language the foundation of a culture, which, marvellous as it is in our century, is probably the seed only for a future growth, while no animal ever made even the first step in this direction?

To admit everything as possible, may be very excellent in theory, and, as logicians, we no doubt all admit that the sun may to-morrow rise in the west. But I doubt whether that neutral state of mind is the best adapted for real work, and for the advancement of real knowledge. The chemist who, for the time being, denies the possibility, or at least, the admissibility of a decomposition of what he calls elementary substances, and who declares a change of lifeless into living matter as inadmissible, is much more likely to cross the frontier, if it can be crossed, than he who from the beginning looks upon all these distinctions as mere vanishing lines.

If we do not simply play with words, if we take *conceivable* in that sense which it has among professional students, viz., something which is in accordance with known facts, then we ought not to say that the elaboration of language by any animal is conceivable; but, on the contrary, it becomes our duty to warn the valiant disciples of Mr. Darwin that before they can claim a real victory, before they can call man the descendant of a mute animal, they must lay a regular siege to a fortress which is not to be frightened into submission by a few random shots; the fortress of language, which, as yet, stands untaken and unshaken on the very frontier between the animal kingdom and man.

I trust that, in the course of these Lectures, when arguing against the conclusions of the Darwinian school, I have never shown any want of respect for Mr. Darwin. The results at which I have arrived by a life-long study of language and thought are incompatible with the results to which a minute study of the human body has led Mr. Darwin. One of us must be wrong, and it therefore seems to me mere cowardice to shrink from an open combat. It is true 'that Mr. Darwin has not paid special attention to the problem of language and thought, and that all he says about it may be contained in some six or eight largely-printed small octavo pages.' But I submit that six or eight pages from Mr. Darwin may have more weight than a volume from many other writers. Anyhow, if Mr. Darwin is right, then language is not what I hold it to be; it is not the embodiment of conceptual thought, it is not developed from roots, it is not based on concepts. If, on the contrary, language is what I hold it to be, then man cannot be the descendant of some lower animal, because no animal except man possesses the faculty, or the faintest germs of the faculty, of abstracting and generalising, and therefore no animal, except man, could ever have developed what we mean by language.

Gentlemen, it matters very little who is right and who is wrong, but it matters a great deal what is right and what is wrong. By no one should I more gladly confess myself vanquished than by Mr. Darwin. I feel for him the most sincere admiration; nay, I have never concealed my strong sympathy with the general tendency of his speculations. His power of persuasion, no doubt, is great, but equally great is his honest love of truth; and when I find him again and again admitting that no intermediate links between the highest apes and man have yet been discovered, that the gap between ape and man, small as it is, can be filled with imaginary animals only, I ask myself how it is possible, in the absence of all tangible evidence, that our matter-of-fact philosophers should have listened to such arguments. Unless there were, in fact, some important germs of truth in his philosophy, I cannot think that Mr. Darwin could ever have carried us along with him so powerfully and almost irresistibly.

If Mr. Darwin were more anxious for

victory than for truth, I have no doubt he would have handled the argument of language, too, in a very different spirit. He feels the difficulty of language, he fully admits it; but not seeing how much is presupposed by language—looking upon language as a means for the communication rather than for the formation of thought, he thinks it might be in man a development of germs that may be discovered in animals.

Now a clever pleader—of whom we have too many, even in the courts of science—might say, 'Why, does not the very theory you have propounded of the origin of roots prove that Mr. Darwin is right? Have you not shown that animals possess the materials of language in interjections; that they imitate the cries of other animals; that they communicate with each other, and give warning by shrill cries; that they know their own names, and understand the commands of their masters? Have you not "blessed us altogether," by showing how interjections and imitations can be filed down, lose their sharp corners, become general—become, in fact, roots? Surely, after this, Mr. Darwin will be justified more than ever in saying that the language of man is the result of mere development, and that there must have been one or several generations of men who had not yet generalised their intuitions, and not yet filed down the sharp corners of their interjections.'

I have no doubt that such pleading would seem plausible in many a court, nay, to judge from the remarks that have been addressed to me both by word of mouth and by letter, I should not be surprised if several members of the jury I am now addressing were to lean to the side of the animals. Some young ladies have assured me that, if I only knew their dog, I should have spoken very differently; that no one who has not been loved by a dog can

know what true love and faithfulness are. Some elderly ladies have told me that I knew nothing about cats, and that their cats possess quite as much cleverness, quite as much intellect—as they themselves. The very statement with which I concluded, and by which I wished to bring the whole question into the narrowest compass, when I said that no animal could form the lowest generalisation, could count two, or think and say Two, has been met by the pigeons at Venice. They, at all events, I was told, can count two; for every day, as soon as the clock of St. Mark's strikes two, neither sooner nor later, they assemble from all parts of Venice to be fed on the piazza. Surely, therefore, they can count two. This seemed indeed unanswerable. But fortunately my informant went on to say that the other clocks of Venice strike two first, and the pigeons pay no attention, but when St. Mark's strikes, they all come. What does that prove? It proves that they do not count two, but that their hungry stomach strikes two, and that it is the peculiar sound of the St. Mark's clock, even were it to strike twelve, that brings them together to their dinner.

Our own clock reminds me that it is time to finish. It was not easy to say all I wanted to say in the course of three Lectures, and I am deeply conscious that some of the points on which I touched but lightly ought to have been treated far more fully. I hope to do this on a future occasion, after I have had time to examine carefully the objections which these Lectures have elicited, and may still elicit. But I trust I have said enough to show you the Science of Language in a new light; and to make you see its paramount importance for a truly scientific study of Psychology, and for the solution of problems which hang like storm-clouds over our heads, and make our very soul to quiver.—*Fraser's Magazine.*

MARRIAGE IN FRANCE.

ONE of the effects of the individual self-confidence which is so general an attribute of us Anglo-Saxons, is to incline us to face marriage without calculating its cost. We do it because it tempts and interests us at the moment, trusting to luck and to our strong arms for the means of keeping our wife and children. There is something manly and

vigorous in this way of acting: of course it is rash and dangerous, of course it often leads to all kinds of worry, and it sometimes ends in downright misery; but there is a pluckiness about it which commends itself to our natures. Political economists and philosophers go on attacking it with unavailing arguments and unconvincing

proofs. Right as they may be in theory, they do not influence our practice; "improvident marriages" are as numerous as ever. We are not a prudent people in this respect, and neither earnest books nor eloquent discourses are likely to change our tendencies. Most of us believe, in varying degrees, in our own innate power of overcoming obstacles as they arise. We do not shrink from matrimony because it may involve us in risks and difficulties; we rush at it because it attracts us at the moment, and because we are surrounded by crowds of people who have done the same before us, and have struggled somehow through the consequences of their hurry or their error.

The process of the French, on this point as on so many others, is in absolute contradiction with our own. Where we decide and act, they weigh, and calculate, and hesitate, and consider. They reach no resolve until they fancy they have exhausted the measurement of advantages and disadvantages, until they have pondered over probabilities and possibilities, until they imagine they have united as many elements of success as human foresight can collect. It can scarcely be said that even in England marriage is regarded as a purely personal arrangement, concerning only the two immediate parties to it. We admit, in our upper classes at least, that it involves considerations of a varied nature, which justify and sometimes even require the intervention of parents and families. But the French carry this intervention to a length which we could not support: they leave no liberty and no action to the coming couple: the whole thing is taken out of their hands: they are treated as if they were incompetent in the question: their parents undertake the negotiation for them, and handle it as governments deal with international treaties. Glaringly evident as are the emotionality and the mobility of the French in other phases of their conduct, they have no application here. They find their use abundantly in superficial sentiments, in the forms and thoughts and words of outside existence, in the manifestation of already existing affections; but, with rare exceptions, they have nothing to do with the preparation of a marriage. Their place is taken, on that one occasion, by a dry, arithmetical computation of practical results, with no excitement and with no

distractions. Where we so ordinarily listen to what we understand by love, to the temptations of the young heart in all their forms (however transitory), to our individual impressions and to our own opinions, the French consult fitnesses of relative situation, reciprocities of fortune and position, and harmonies of family intercourse. They seek to insure the future, in some degree, in its social as well as its pecuniary forms. They lay it down that passion is no guide to permanent satisfaction, and that other people than the two directly interested have, both in law and reason, a right of judgment in so grave a case. This does not absolutely mean that pre-existing sympathies are considered to be unnecessary for marriage in France; but it does mean, in the distinctest language, that such sympathies alone are not admitted there as a sufficient motive for an association which is to last till death. Sympathies wear out sometimes; new ones grow up from other contacts; eternal attachments are very rare between people who have not managed to get married, and have not the aid of the wedded tie to hold them steadily together: but the necessities of life never fade away; they never weaken; they remain in force with pitiless persistence, and French parents pay more attention to them than to what may be only a passing inclination in their sons and daughters.

And it must be borne in mind that this view of marriage is not solely a development of the national disposition towards prudence; it is also, to some extent at all events, a consequence of the legal enactments contained in the Code Napoléon. The law forbids all marriages without either the consent of the father and mother, or proof that they are both dead. It is very troublesome to get married in France; the operation is surrounded by difficulties and formalities which would make an Englishman stamp with rage. It is true that if parents refuse to allow their children to follow their own wishes, the latter are permitted, provided they have attained their majority, to go through a process called "a respectful summons to consent," after which, if the parents persist in their rejection of the appeal, marriage may be at last attained. No matter at what age a man or a woman marry, even if they are sixty, they must either produce the written consent of their father and mother, or

show that they have applied for it in due legal form and that it has been denied them without sufficient cause, or prove that they are orphans. The object of this legislation is not only to prevent bigamy (which, under such conditions, is naturally rare in France), but, even more, to maintain parental authority, and to insure a due subjection of children. So far there is something to be said in its favor, especially as, in many cases, it really does protect young people against their own folly. But as, after all, marriage is a complex state, requiring something more than a father's approbation to conduct it to success, it is natural that we, who regard the entire subject from a very different point of view, should have a good many objections to urge.

The question, however, is not merely one of legal forms and parental privileges; it contains a vast deal more besides. As marriage is the real starting-point of home life—as the happiness of husbands, wives, and children depends, in a great degree, on the conditions under which it is realised and worked out—it is fair, and even necessary, to judge it not only in its beginnings and its organisation, but in its results as well. Indeed it would be rather difficult in such a case to consider causes without effects. We look, instinctively, from one to the other, and, half-unconsciously, estimate the value of the commencement by the value of the end.

But how are the results of marriage to be correctly measured? We all know how difficult it is to make a definite opinion for ourselves on the point even in the case of the friends with whom we live in constant intimacy, whose interiors we know in detail, whose quarrels, whose special sympathies, whose qualities and defects, we have had some means of testing. How then, if it be so hard a task to reach a conviction in the few cases round us, can we hope to form a judgment fairly applicable to an entire nation? Vague ideas are of no use here; prejudices mislead; facts are impossible to collect on so large a scale. And yet there is a guide, an incomplete and insufficient one, but still a safe one so far as it can lead us; that guide is the impression which a nation entertains about itself. If we consult it carefully we get the accumulated experience of the mass in the only form in which it manifests itself on such a sub-

ject as this. There are no returns, no reports, no statistics to refer to; but there are drawing-room talks, and half-confidences, and village rumors, and the gossip of the market-place, and the wise head-shakings of the old people; and with their aid, if we listen closely, we can compose a tolerably approximate picture of what all these indications describe. But we can only do it fairly on condition of being scrupulously exact, of effacing from our memory all predisposition towards special shades and special forms, of marking down absolutely nothing of what our own imagination so easily suggests, and of strictly limiting our coloring to what we are quite certain that we distinctly see. And, even then, we have to reconcile bitter contradictions, to group together the most opposite results, to institute a comparison of causes.

But before we consider the evidence thus obtainable as to the moral results of marriage in France, it may be useful to cast a glance at the material comparison which it is possible to make between the quantity of marrying which takes place amongst the French, and the corresponding figures on the same subject which other nations offer. In his '*Éléments de Statistique*,' M. Moreau de Jonnès gives a table of the number of marriages which are effected annually in the principal countries of Europe. Ireland comes first with one marriage for each ninety inhabitants; France is sixteenth with 1 for 122; England twenty-seventh with 1 in 137; Tuscany twenty-eighth and last, with 1 in 143. Now if this be true—and the well-known name of M. Moreau de Jonnès may be accepted as a guarantee, for the exactness of the numbers—it seems to follow that, notwithstanding our headstrong imprudence, we English actually marry less, proportionately, than the prudent calculating French, who look before they leap. This is an unexpected fact to start with, but, if it be a fact, it indicates, with tolerable distinctness, that the hesitations which precede all marriages in France do not really stop marriage, for the French stand in the middle of the table which has just been quoted, below the Northern races, which (excepting England) head the list, but above all the Southern States, which close it. The position thus indicated for France is the very one which would appear to be the most desirable to occupy; it is a fair average,

showing neither too little nor too much. And France retains the same approximate position if we look backward and carry the comparison into the eighteenth century. A hundred years ago, marriages were everywhere more frequent than they are now: subsistence was more easy to obtain, it was not so difficult to provide for children, and we consequently find that the number of annual marriages, relatively to the then population, was, throughout Europe, about ten per cent above its present rate. But the diminution which has since occurred has been universal; it is not special to France or to any other land. The French continue to take wives in the same proportion as they have always practised towards their neighbors; they have diminished matrimony only as it has been diminished all around them.

If, however, they have held their own in the rate of marrying, they have diminished largely, since the Revolution, in the fecundity of marriage. In 1770 the children born in France were in proportion to the whole population, 1 in 25; now they have come down to 1 in 35; the falling off has consequently reached the enormous figure of forty per cent. Here lies the real explanation of the strange fact which has so astonished Europe after each census recently taken in France; the fact that the French have almost ceased to increase in numbers. It is not, however, as a statistical curiosity that the subject is referred to here, but because it is most intimately connected with the entire question of French marriages, because it bears closely on their moral organization, because it opens the door to considerations which would be almost incomprehensible if it were omitted. We will presently come back to it. Meanwhile we can leave dry figures and return to the more interesting study of opinions, impressions, and personal experiences.

The French are certainly convinced that they are a happy people. And so they are, if gaiety and cheeriness and mutual good-will can be taken as satisfactory and sufficient evidence on the point. No nation has more laughter; neither Irishmen nor Negroes surpass them there; and it is generally good, honest laughter, resulting from a motive, not mere senseless giggling. But happiness and laughter are not synonymous; the latter is not

necessarily a symptom of the existence of the former; the saddest of us may laugh sometimes, while the most thoroughly contented may be constitutionally inclined to gravity. It is not, then, on this one outward sign that either practically or logically the French can base their claim to be regarded as a really happy nation. If the claim be founded, the grounds on which it rests must be looked for elsewhere—in deeper, less superficial, and less apparent proofs. It is especially in their use of married life that the evidence, if really it exists, should be looked for and be found. And here it is that we must take up the testimonies alluded to just now and try to measure what they reveal to us. If marriage, as a rule, is found to produce success—if the men and women that it brings together generally assert that they are satisfied with what they have extracted from it—if lookers-on, all round them, confirm their declarations, and tell us that their married friends—so far as they can judge them—have no home difficulties and no home regrets, then we may, without imprudence, recognize that the French are really a happy people, and that the marriage system on which their home life is based, is proved to be well adapted to their character and their needs, for the simple reason that it leads them on to joy.

It may be said at once, subject to exceptions, explanations, and reservations, that this result is generally attained by the French, that they really are, in-doors, a happy nation, and that their marriages, as a whole, present enviable results.

It may be as well, however, before going further, to attempt to give a definition of married happiness as it is sometimes comprehended and pursued in its highest form across the Channel. It is not always quite the same condition. It not unfrequently implies, amongst the educated classes, a ceaseless employment of intelligence and skill, such as we rarely know of here. The mass in France, of course, acts like the mass elsewhere; it takes life as it finds it; it "lets it rip," as the Americans say. It seeks no improvement; it crawls on with what it has. But there is a theory of marriage which some French men and women understand and realise—a theory which not only leads them to distinguish the highest uses to which the married state may tend, but which enables them to de-

teed the means by which those uses can be reached. In cases such as these, the life which two lead together becomes a constant, ever-growing pursuit of forms and shades of happiness which are beyond the thought, and even beyond the faculty of comprehension, of the crowd. The basis of their practice rests on the wise precept, that as our longings, our necessities, and our fancies, change with time and age, and with position too, the attempts we make to satisfy those longings and those fancies should vary their nature and their character in sympathy with the modifications which occur in the object to be attained. What pleases us at twenty, begins to lose its charm at thirty, and wearies us at forty. And if this be true of men, it is truer still of women, who, as a natural result of the home-life they lead, are fatally condemned to aspire after variety of indoor emotions, because they can find none outside. The husband who has studied the philosophy of home happiness, who has entered marriage with a true sense of its dangers and its powers, will not wait for his wife to manifest fatigue; from the first hour of their common existence he will begin to teach her that the tie between man and woman cannot preserve its vigor and its first eager truth unless the elements which compose it are skilfully replaced and thoughtfully renewed as they successively wear out and gradually cease to produce their old effect; he will try to show to her, while she is still in the enthusiasm of early wedded joy, that happiness, like all other states—and perhaps even more than all the rest—is, by its very nature, but a passing, transitory condition; that what gave it to us yesterday may fail to create it for us to-day; that the sympathies which seem to us so ardent and so durable in the inexperience of our beginnings, will be but fading brightnesses if we do not watch over each fluctuation of their aspects, each faint symptom of their change. Young wives may hesitate when first such theories as these are laid before their astonished eyes; it causes pain to their earnest fondness of the moment to be assured that, according to the laws of probability, that fondness will not last unless new nourishment, new starting points, new stimulants be provided for it as years pass on. But when once they have grown accustomed to the argument—when once they have been led to an appreciation of its unvarying and universal

application—then, if they do love their husband truly, they become his active aid, his convinced co-operator in the delicate but inestimable labor of maintaining, in all its strength of origin, of developing to its fullest growth of perfectness, the first object of their united life—joint happiness.

And yet examples seem to indicate that frequently women do not possess the faculty of understanding the profound utility of this crafty handling of their lives; when once they really have grasped it they are capable of contributing to the result with even more power than men; but their appreciation of the necessity of the effort is often sluggish, and, as a rule, they have to be dragged to it either by entreaty or necessity.

The general tendency of wives—in France as elsewhere—is to regard happiness as a vested right, as a natural fact, as a permanent condition, as a self-sufficing, self-maintaining state, which ought to go on and last because it has once begun. Most of them violently revolt the first time they are asked to own that married happiness may be, on the contrary, and by its very essence, the most ephemeral of all short-lived creations. They take man's love as a property and a due; they fancy that it is the husband's duty to keep up that love without any special aid from themselves; they let themselves be loved, but they do not help love to last; as Johnson said, "they know how to make nets, but not how to make cages." In cases such as these—and, unfortunately, they constitute the majority of experiences in all lands—there is small hope of permanent contentment: if the husband is ignorant enough—as indeed the greater part of husbands are—to view the case exactly as the wife does—to imagine that he can leave the future to take care of itself, and to allow the early rush of mutual satisfaction to struggle to its end, without providently preparing, in good time, the elements of the second act of married life, then he reaches the usual emptiness and disappointment in ignorance of the causes which have produced them, and ends by regarding them as a natural consequence of matrimony. But if he is a thinking man, if he has given some of his attention to a calculation of the conditions necessary for the conservation of home delight, then he does indeed suffer if he finds himself tied for all life to a woman who is incapable of helping him to attain,

by mutual labor and mutual watchfulness, that rare but admirable result—permanent and increasing joy in marriage.

In France there are certainly a good many people who rise to these higher views—who look on marriage as a serious occupation, which requires absorbing thought—who ceaselessly endeavor to improve its form, and to lift its consequences and its products above the level of humdrum existences. And often they succeed. Now success, in such a case, implies that they distil, from contact with each other, a degree, an elevation, a thoroughness, a perpetuity, and a reality of happiness which less able and less careful manipulators of home-life are incapable of producing. They show us what skill and science can elaborate from ordinary sources; they show us the height of satisfaction to which we are capable of climbing, in the relation between man and wife, if we will but regard that relation as a plant to be sedulously cultivated, and not as a weed to be left to combat unaided for existence. Many an example might be given in support of this rough indication of what marriage may be when it is rightly understood. In the higher ranks of French society there are men who merit to be called professors of the art of happiness; who have analysed its ingredients with careful fingers and scrutinising eyes; who have consummated their experience of means and ends; who, like able doctors, can apply an immediate remedy to the daily difficulties of home-life; whose practice is worthy of their theory, and who prove it by maintaining in their wives' hearts and in their own a perennial never-weakening sentiment of gratitude and love. But, alas! these cases are exceptions. Most French people content themselves, like their neighbors in other countries, with rumbling carelessly through marriage, making no attempt to improve it, and not even suspecting that it is capable of improvement. And yet, thanks to their light, laughing natures, they generally keep clear of gloom. They bring into married life the bright cheeriness which is so frequently an attribute of their race; they stave off worry by *insouciance*; they support annoyances with a coolness, which in their case is not indifference, but which, to an unpractised foreign eye, looks so singularly like it, that it is difficult at first to fix the point where calm patience appears to end, and indifference seems to begin.

There are, however, contradictions in abundance to this rule of quietly supporting cares. Frenchmen have sometimes in their character so many of the faults which elsewhere are supposed to be the property of women only, that they are capable of growing fidgety and nervous to a scarcely creditable degree; and woe to the unlucky wife who stumbles on a husband of that species!—he wears her out with teasing. Gentle and affectionate as the men ordinarily are, there are some among them who are absolutely intolerable at home. Luckily they form an infinitely small minority; otherwise it would be nonsense to pretend that French marriages, on the whole, are happy. The evidence which can be collected by listening to opinions, including ill-natured scandal in all its forms, tends certainly to show that, according to their impressions of each other, most Frenchmen are singularly forbearing towards their wives; they do not make the most of them—that effort is limited to the rare examples which were alluded to just now—but their habit is to treat them with much softness, with constant consideration, with deference and courtesy. They generally come together, in the origin, without much passion, or, indeed, much love; the conditions under which their marriages are arranged make that fact easily comprehensible; but love does grow up between them in nearly every case, and they end by feeling for each other an attachment quite as real, as thorough, and as deep, as we find in countries where other systems are in use. It is far from easy to discover really unhappy marriages in France; here and there are isolated instances, evident to every one, for they have terminated in voluntary separation; but the testimony of society, and particularly of the women, who are not more charitable towards each other in France than they are in other lands, in no way indicates any multiplicity of failures. The impossibility of divorce creates a strong motive for mutual concessions, with the object of soothing away asperities, and of rendering obligatory companionship supportable, if not agreeable. As for absolute infidelity, on either side, it is now so rare that it is often possible to look round a large circle of intimate acquaintance without being able to point out one example of it. This assertion may seem absurd and false to that large group of English people, which,

though in total ignorance of the facts, grows up, lives, and dies in the contrary conviction—but the assertion is strictly, literally true. The marriage-tie is vigorously felt in France: husbands and wives cleave there to each other, and do not now seek for illicit joys, whatever some of them may have done in days gone by. Indeed, they point to England at this moment as the country which produces palpably the largest amount of conjugal irregularity, and quote in proof, with bitter justice, the shameless details of the Divorce Court which are given in our newspapers. We have grown accustomed to this odious publicity; habit blinds us to its dangers and its indecency; but if we could hear foreigners talk about it—if we knew the impression of disgust which it creates in France, where the rare cases of co-responsibility are treated criminally, and are always pleaded with closed doors; where husbands do not receive money-damages for their wife's dishonor—we should perhaps be led to recognise that, in this question, we do not offer a satisfying spectacle to Europe, and that we have lost all right to throw stones at others. We are unable to judge ourselves on such a subject; we must submit to the verdict of lookers-on; and a very painful one it is for us to support.

But if the French are less attackable than we are on this element of the workings-out of marriage, they are open in another direction to a founded imputation, to which allusion has been already made, and which is almost graver still, because its application, instead of being exceptional, is universal. Their marriages produce scarcely any children. Here discussion is needless; here differences of opinion cannot exist; here prejudices cannot apply,—for the fact is proved by their own official returns. Before the revolution of 1789 the population of France amounted to about 24,000,000, and the annual number of births was about 970,000. At this moment the population is about 37,000,000, and the average number of births is only 950,000 per annum. In other words, though the population is one-half larger than it was a hundred years ago, it begets absolutely fewer children now than then. The present yearly birth-rate in France is the lowest in the world. In Germany it represents 1 in 25 of the entire population, in England it is 1 in 30, in France it is only 1 in 39. And

it must be borne in mind that this diminution does not result from any falling off in the proportionate rate of marriage, which, as has been stated, keeps up its place in comparison with other countries. It is solely brought about by the wilful refusal of married people to become fathers and mothers, as married people do elsewhere. A topic of such a nature is awkward to dissect, but it constitutes one of the salient facts of the subject, and it could not be omitted without leaving a great gap in the discussion; it forms one of its striking features, and it necessarily exercises an important influence on the opinion to be formed. The rejection of paternity is a consequence of the excessive prudence with which the entire subject is handled by the French; they do not marry unless they think they can afford it; they do not have children unless they think they can provide for them. It in no way affects the attachment between man and wife; it in no way diminishes their affection for their children, when they have them. On the contrary, their family tenderness is demonstrative and excessive. But the mere existence of this resolute unwillingness to have children, places France in a low position before Europe, and suggests grave doubts as to the moral value and efficacy of a system which, whatever be its merits and its qualities, whatever be the happiness which it produces, results in so flagrant a negation of the first object and the first duty of marriage. It may perhaps be denied that it forms an inherent part of the entire scheme; it may perhaps be argued that it is an accident, a temporary tendency; it may perhaps be urged that the general organisation of married life in France should not be held responsible for it; but to such objections it may be fairly answered, that the tendency in question, instead of assuming a temporary aspect, has gone on steadily gaining strength for a hundred years; that during the present generation its development has coincided with an increase of wealth, which ought, apparently, to have brought about an exactly opposite effect; and that it is, consequently, quite reasonable to regard it as a definitely adopted policy.

Now, whatever be the value, in political economy, of the principle of "circumspection in marriage" with which Malthus has associated his name, there are but few of us who can look at it with ap-

probation from a moral or a social point of view; and though he himself, if he were still alive, might be immensely gratified to find that an entire nation is realising his ideas on the largest scale, we, who in this case are but simple critics of the results of married life in their natural and habitual form, may be allowed to view the matter otherwise. Abstract theories about movements of population, and about proportions between demand and supply, can never be got into the heads of people who regard marriage as we all do, not only as an institution destined to give personal contentment to those who profit by it, but, quite as much, as a link between successive generations. How, then, can we help recoiling, with a good deal of really felt disgust, from the insufficient use of marriage which is so evident in France? And yet, strong as this feeling may be in us, it must not lead us to exaggeration. The rule is proved by the figures which have been quoted; there is no doubt about its application in the majority of cases; but there are exceptions in abundance; the whole nation is not infected; there are still in France a good many people who trust in God, and not in Mr. Malthus. That too intelligent Englishman is not, however, the inspirer of French peasants in the matter; scarcely any of them have ever heard his name; they execute what he advised; they work out his teaching, but without knowing what he taught. Their motive is individual, not national; they have no idea that they are practising political philosophy when they tell you, as they do, that "*il faut faire la soupe avant de faire l'enfant.*"

The exceptions are, happily, sufficiently numerous to give some little brightness to a picture which would otherwise be so dark. There are, here and there, large families in France, and nowhere can more admirable illustrations of pure home-life be found than those they offer. It is, perhaps, especially in the upper sections of society that those examples are to be found; the trading and working classes have, ordinarily, so little religion and so little elevation of moral convictions that they abound the other way; and, as they constitute the mass, it is they, almost alone, who have brought about the decline in the progress of population. It is, therefore, not unjust to say, in principle, subject of course to reservations on both

sides, that the higher ranks are now multiplying in France more rapidly than the lower strata. This progress is of course imperceptible materially, but in its degree, it certainly exists.

Another, but a very different question, which it is worth while to look at, is the influence of society, or, more exactly, of social relations on the results of marriage. Evidence upon it is very plentiful and easy to collect; for we have but to listen to the talk when half-a-dozen people are together. Whatever be the class which we observe, we find on this head a general similarity of action and effects. Notwithstanding their great love of home, Frenchwomen live a good deal with each other and with men: their form of life is so free from the restrictions and the obstacles which we impose upon ourselves—there is generally so much liberty and facility of visiting at all hours of the day and evening—that the contact between acquaintances attains a frequency of which we have no idea. In the higher classes some few husbands go to clubs, or live somewhat in their own rooms; but such cases are exceptions; with them, as in the middle groups, husbands are ordinarily with their wives, accompany them wherever they can, and share their friendships and their distractions. With so eminently sociable a race it is natural that this should be so, and the disposition is confirmed by the original conditions of marriage, which always—as much as possible, at least—provide for the maintenance of family connections afterwards. The French do not regard marriage as a state in which two people are to be tied up by themselves; they view it as an association, which should in no way affect the habitual contact between the parties to it and the rest of the world outside. Of course, in practice, everybody remains free to select his or her own system of existence. There are examples, and a good many too, of married people who stop at home, "*qui vivent en sauvages,*" as their neighbors say of them; but they constitute the exceptions—the rule is the other way. The facility of making visits, and walking about alone, and going to parties without a chaperon, is proper to all girls who marry, whatever be their country; the French have no monopoly of it. It is not therefore an act of freedom that newly-married Frenchwomen go into society; they do it because

they like it, because their husbands like it, because it is the habit of their nation. The idea that marriage confers any special liberty on Frenchwomen is most erroneous; they have neither more nor less of it than women possess elsewhere; it is, however, comprehensible that the contrast between that degree of liberty and the extreme reserve in which the girls are kept (which we perhaps should do well to imitate) should have provoked amongst us the false impression that a French wife acquires a greater emancipation than other European wives enjoy. She remains bound by the universal laws which regulate the conduct and the attitude of women; she obtains no peculiar rights; she shakes off no chains; she does but gain the position and the power which enable her to discharge the new duties which devolve upon her. Foremost amongst those duties is the obligation to maintain her social place. She likes the obligation; it costs her no effort to discharge it; and, in most cases, she would annoy and disappoint her husband if she neglected it. So they go about together and amuse themselves, as a right and proper thing to do; it is one of the objects for which they married.

In limits such as these it can scarcely be alleged that the habit of social intercourse, highly developed though it be in France, constitutes a danger for home peace. There are crowds of married people there who never stop at home, whose life is almost exclusively passed with others: but if they all like it, there is no harm in that; it is only when one side is discontented with the practice, while the other wilfully continues it, that it grows into an obstacle. This case exists, of course, but it is rare: most French men and women like society too much for either of them to shrink away from it.

This constant contact with other people has, however, the inconvenience of provoking vanities and envies, and consequently of leading women to expense. There lies, perhaps, the only serious objection to it which can be urged as regards its influence on married life. It cannot be seriously said, by any one who knows the French, that it at all affects their regular attention to their home duties, especially towards their children, who are thought of and cared for before all else; but it is not possible to deny that it tempts the women on

to dress, and to the other rivalries which drawing-rooms provoke. But most French husbands rather like their wives to shine, and look on complacently at the effect which they produce, and at the triumphs which they achieve. The association between them is generally intimate enough for each of them to find satisfaction in the other's glories, even if they take only the tiny form of a successful gown. So, if they can afford it, the additional outlay which is induced by much going out, does not become a source of difficulty between them. Whether it does them any good, whether it aids them to really love each other better, whether it elevates their views, may certainly be doubted; but as it amuses and contents them—as it gives them a common object in life, such as it is—we may admit that, with their ideas, they are right to hold to it.

Even in the trading classes there is a good deal of this seeking for society, in a small way. There, however, the wife usually assumes a position of a peculiar kind. She does not visit so much with her husband at night, but she is his companion throughout the day, wherever the nature of his occupation makes it possible that she should remain with him; she participates in his life, she shares his cares, she helps in his work. At the top of the scale, the French wife is a woman of the world; at the bottom of it she is a drudge, as is the case in other lands; but in the lower middle strata she takes a special place by her husband's side,—so sympathetic, so cordially real, that to many of us she presents a high realisation of the idea of what a wife should be. It is only in the central ranks of population that we find fair average national examples; above and below those ranks, both wealth and poverty come into play, and introduce conditions of existence which diminish the teaching value of the classes which they influence. But in the *bourgeoisie*, which constitutes in its various degrees so large an element of the French nation, we find the unadulterated type of France. It is there that we should look for the speaking signs of a general state; and if these signs are cheering, if they indicate success, if they testify that satisfactory ends are reached, we may surely conclude that good causes are at work; and we may, consequently and fairly, arrive at the opinion that, whatever be its faults,

the system is not all bad, and that, on the contrary, it renders possible a form of home unity which is peculiar to the race.

It is not by mere comparison with the results obtained elsewhere that we can safely judge this question. Each people has its own special needs, its own special means of satisfying them. A great many of us are disposed to positively deny that the thorough oneness of existence, which is so distinctive a characteristic of married life in the French middle and trading classes, is, in reality, a merit. The subject has been many times discussed from the English point of view, and it has been generally alleged that the absorption of women into the hourly details of their husbands' lives involves more disadvantages than advantages. It has been argued frequently that it leaves no time for the discharge of the duties which specially devolve on women; that it diverts their thoughts to subjects which are foreign to their natures; that it leads them to neglect their children. But are these objections founded? Are they not mainly, if not entirely, a product of the widely different habits under which we live? And, even if they are based on fact, do they express a just and serious criticism of conditions of home life, which, from the widely opposite practices in which we grow up, we are unable to appreciate with fairness? Surely it may be urged that every act which fortifies the tie between man and wife is not only respectable in theory but desirable in practice. Surely a true appreciation of the relative values of the different services which a wife can render, of the different joys which she can provoke, can be more surely reached by the husband himself than by distant lookers-on, who, unconsciously perhaps, bring all their own prejudices into the discussion. If, then, we find, as we distinctly do, that the French themselves proclaim the merit of the asd junction of the wife to her husband's labor;—if we see that the association which is entailed by marriage is regarded by them as applicable not only to sentimental ends, but to the practical details of life as well; if women, as a consequence of this view, sit by the side of men in offices and shops, instead of leaving them to work through the day alone,—we ought, in justice, to acknowledge not only that the persons directly interested must be better able to decide than we are, but, furthermore, that such constant presence, such constant

sympathy of object and of thought, must tend to strengthen the bond between them, and must augment their friendship. On this point, therefore, we may admit that the French habit is a wise one.

As regards intellectual progress, marriage ordinarily leads the French to nothing. The notion that wife and husband may usefully help each other on such a road seems not to enter their heads, unless, in special cases, where the acquirement of knowledge, or its distribution to others, constitutes the occupation of life. When once they have left off schooling, the French cease to study; they continue what they call their "education," but they give up "instruction." The two words are here employed in the sense which is peculiar to France—the former meaning moral and social teaching only, the latter implying solely book-learning in its various forms. They continue to improve themselves as men and women, as towards their soul (when they think they have one) or towards the world at large; but they abandon the attempt to add to what they learned in youth. These descriptions are of course general, not universal; but their application is so usual that they need not be accompanied by any special reservations.

With such views and practices, it is natural enough that marriage should introduce no new ideas of action. A husband may push his wife towards art, though that depends on his or her proclivities; but scarcely ever will he think of leading her to read, or of communicating to her what he may know himself. In quantities of drawing-rooms in France an open book is never seen; in some of them even newspapers are exceptional objects. This does not refer to the higher classes, where, frequently, there does exist some desire for new facts; but the want of books on the tables of the *bourgeoisie* creates a cheerless blank which no profusion of plants or flowers can fill up. Sometimes one observes two or three stately volumes in red morocco, which evidently are never looked at, and probably have never been read; all they do is to confirm the thought that their proprietors look to other people, and not to print, for fresh impressions. But conversation, whatever be its merit, whatever be the clever uses made of it, does not replace reading as a developer of knowledge; all it does is to enable us to use knowledge if we have it. In this

direction French married life is far inferior to our own. Our women read; our men generally feel some sort of interest in what their wives are learning; and without pretending that marriage is, with us, an aid to study, it is so certainly when we compare it to what occurs in France. Music, on the contrary, is more general in French houses than in ours; art is more keenly felt and more naturally utilised. Their marriage serves an end, for it is particularly after marriage that Frenchwomen attain the skill which distinguishes them in all the forms of indoor adornment, which means the daily application of the home shapes of art. To this the husbands contribute a good deal; in this they help their wives. But, whatever be the value of such action, whatever be the additional attraction bestowed on home by this common effort to add charm to it, the absence of the higher tendencies of intelligence implies an inferiority of object which is one of the weak points of the entire system. The sentiments find full satisfaction in most French marriages—the affections are contented—family duties are attentively and even eagerly performed—home is decorated, so far as the purse allows, with the wise ambition of rendering it more seductive; but there is little culture of the intelligence, and the pleasures which that culture is capable of producing in marriage are relatively unknown.

Even in the country reading does not assume an important place amongst the occupations of the day: there is more of it than in the towns, but not enough to justify the statement that it constitutes an element of life. As there is less society in the chateau and the village than in the centres of population, wives have to look for something else than gossip to enable them to pass their hours. Home cares absorb a considerable portion of their time—visits to the sick and poor, which few women of the better sort neglect, contribute to employ it; but reading seldom becomes a constant object, even when it rains. The '*Revue des Deux Mondes*,' or the '*Correspondant*,' according to the opinions of the house, and translations of a few English novels, constitute the habitual limit of female study. With all their inventiveness, the French have not discovered that reading is not only the most natural, but also the most

useful of home occupations; so, as a rule, their marriages do without it.

There is one more point to glance at. What is the influence of religion on married life in France, and how does marriage influence the practice of religion? The solution of such a question depends on personal opinion in every case, but it is not, perhaps, impossible to give a proximately correct reply to it as a whole. All French children begin by faith; many of the girls preserve it, most of the boys abandon it, in varying degrees on both sides. The result is, that when a man and a woman come together in marriage, the woman frequently believes, the man habitually does not. They therefore pretty often start in life with a tolerably complete divergence on a grave subject, which, if they thought alike upon it, would serve, on the contrary, to create a further tie between them. But there is abundant evidence to show that this divergence exercises but small effect on the sentiments of wife and husband towards each other, and even that the divergence itself is often more apparent than real. If we apply to the better sort of women for information, we are generally informed that their husbands leave them alone, do not interfere with their discharge of their religious duties, and even, in certain cases, accompany them to church as a matter of propriety. In the educated classes it is rare to meet with men who are actively hostile to religion. Many of them say that they regard it as a worn-out means of civilisation, as an unnecessary complication, as a bar to progress; but, whatever they may say in words, scarcely any of them go beyond passive indifference in acts. No simpler or more conclusive proof of this can be adduced than the fact that one hardly ever sees a father, whatever be the intensity of his views, prevent his son from making his first communion. Full of incredulity as the majority of them are, the upper French feel, in spite of themselves, a sort of vague respect for what they believed as boys. However complete be their loss of faith, they unconsciously retain, in most cases, a sentiment of hesitating deference for religion which makes it difficult for them to take up a strong attitude about it towards their wives. The result is, that the distance between their respective views, however considerable it be, is not unfrequently bridged

over by mutual forbearances and concessions; so that, really, no practical dissentiment arises, and no home difficulty results from the want of community of faith. This sort of negative contentment is, however, possible only in cases where no passion is displayed on either side upon the subject; when husbands and wives are eager in the matter, when they set actively to work to convert each other, then they generally end in worry. But if they are patient, and wait for the effect of all the influences which the constant contact of married life places at their disposal, then, not unfrequently, they do end by conversion—that is, the conversion of the husband; for, though there are quantities of men who are led by their wives to faith, there is hardly a woman to be found who has been led by her husband to infidelity.

These considerations apply mainly to the upper classes. The case presents a different aspect if we examine it in the strata where socialism is at work. There the desire to root out all religion is resolute and active; there we find that many husbands use the power which marriage gives them to destroy faith in their wives; the exceptions are, however, numerous, even in the towns. It is naturally very difficult to arrive at any reliable figures on such a subject; but it seems to result from private observations made by the clergy, and extending over many years, that about one-tenth of the entire population of France goes to Communion at Easter, which is the test of Catholic practice. It seems, furthermore, that, on that occasion, the women are about eight times as numerous as the men. So that, uniting these two calculations, and allowing for the number of young children whose age excludes them from participation in the act, it would appear as if about one-quarter of the women and about one twenty-fifth of the men discharge this obligatory religious duty. But it must be repeated that these averages apply to the nation as a whole; the proportions are of course much higher amongst the educated, and lower still amongst the working classes. These figures show (even if they be only approximately correct) how limited is the influence which the practice of religion is exercising on married life in France; and as the averages are certainly not improving, it may be inferred from them that marriage is not now aiding the progress

of religion. The French are growing out of faith, as out of the other convictions which they formerly possessed; and even marriage, with all its subtle means of action, does not appear to be leading them back to it.

If from consideration of the separate phases of the subject we turn back to it as a whole and review its elements in their relation to each other, we find ourselves in the presence of contradictions which, at first sight, do not seem easy to reconcile, and which might induce us to suppose that the question can only be safely judged in its isolated elements, and not in its entirety. But, notwithstanding the conflicting nature of the evidence, notwithstanding the hostility of the main facts between themselves, it ought not to be impossible to disentangle the opposing details from each other, and to reach a general impression.

We find that marriages in France are surrounded by peculiar obstacles, both personal and legal; that individual predilections form but a small element in their origin; that antecedent attachments are not considered indispensable; that the precept "increase and multiply" is not admitted as a binding law. So far the system looks unhealthy, according to our appreciation of what marriage should be. On the other hand, we see that the French marry rather more than we do; that, in nineteen cases out of twenty, the love which did not exist beforehand grows up afterwards; that there is little material misery resulting from imprudent marrying; that separations are rare and divorce impossible; that French homes, in almost every rank, are generally attractive models of gentleness and kindness; that, in certain cases, the pursuit of mutual happiness is based on theories and practices in which the highest forms of skill are successfully employed; that children, few though they be, are fondly cherished; that the association between man and wife assumes, in the lower middle classes, an intensity of partnership for which it is not easy to find a parallel elsewhere; that religion, if it does no good to marriage, cannot be said to really suffer harm from it.

In endeavoring to estimate the real bearings on each other of these two different categories of facts, we may remain convinced that French parents interfere too much in the marrying of their sons

and daughters; we may reject as insufficient and illusory, from our point of view, the arguments which they invoke in favor of that intervention; we may point with unanswerable logic to the relatively childless firesides of France as evidence that, whatever be their love for children, the French shrink purposely from having them;—but, with all this before us, we are obliged to own that they do extract large results from matrimony. The love of home, which we observe so universally amongst them, is, in itself, a proof of the existence of attraction between man and wife; and attraction implies sympathy. This symptom should suffice alone to remove all reasonable doubt as to the reality of the affection which unites most French families. But if affection is a consequence of marriage, it seems to follow that the system on which marriages are based cannot be a very bad one for those who use it. A somewhat similar argument may be employed with reference to the children; the moral wrong of avoiding them cannot be explained away; but, when they do come, they are tenderly cherished, and aid in strengthening the bond between their

parents. If, then, as is incontestably the case, the great majority of French married people love each other and their offspring, it may not unreasonably be deduced therefrom that the difficulties and contradictions which seem at first sight to result from the opposing elements of the position, do not bring about the effects which, with our ideas, we should expect them to produce.

Questions such as these depend a good deal on temperament. The French are not organised as we are; they differ from us in the composition of their character and their tendencies to a degree which it is scarcely possible to realise without close comparison. The same beginnings do not necessarily result in the same ends in England and in France. As was observed at the commencement of this article, it is fair to judge a system by its fruits; and if we apply that principle to French marriages, we ought to own that a system which leads to so much fondness, to so much happiness, to such true home life, cannot be fundamentally wrong, whatever certain of its details may incline us to suppose.—*Blackwood's Magazine.*

THE BRONTËS.

No soil has the monopoly of Genius. Alike in the barbaric empires of the East and the Christian nations of the West, we behold numberless proofs and monuments of that force which has been irresistible in bursting the narrow bonds by which it was sought to be confined, and which men call Genius. This power, or adaptability, or whatever name is chosen to be given to it, is seen to be independent of the conditions which affect men generally, or at least it rises superior to them; it is a law to itself; in the world's darkest ages it has endeavored to pierce the secrets of the universe, and has uttered language which has been the seed of wisdom for succeeding generations. Humanity has been more indissolubly knit together, and the gulf of time bridged over, by a Confucius and a Bacon. Truly independent, indeed, of the accidents of time or place, "the light that never was on land or sea,"—to give a broad application to Wordsworth's graphic expression—beams forth upon all ages and peoples, but in gleams as fitful

as the lightning which cleaves the dense thunder-cloud. The greatest unbroken succession of the earth is this same genius, yielding those potentialities which have operated for the evil or the good of mankind. Wars and enthusiasms have been kindled by it, and dying hopes have been revived by its life-giving influence. It cannot die. Its light may be obscured, but never extinguished. Where the Divine spark exists it must become manifest, for it is imperishable.

But our present purpose is to look at genius from a point which possesses even more of interest than its imperishability. It is to note its appearance in scenes which it has ever favored, and where it has always disappointed the world. How frequently in history has it taken up its abode in the most unpromising soil, where there seemed no root for its rare and extraordinary growth! Where nature has most darkly frowned, and the sterile aspect of her moors and hills has had a corresponding influence upon the population, thence

have sprung some of the choicest spirits, whose lives were fragrant, and whose memories still

Smell sweet and blossom in the dust.

Perhaps no example could be cited in our literary annals which more clearly demonstrates the irrepressibility of genius than that of the remarkable trio of sisters who were known originally as Currer, Ellis, and Acton Bell. The truly surprising vigor of their mental constitutions can only be accurately gauged by a consideration of the natural and other disadvantages which they successfully overcame. To many persons, we suppose, they will ever remain but a name, though one almost synonymous with sturdy independence of character; but to those who more deeply study their separate individualities an untold wealth of interest and profit will be discovered. Their life's history proves that in the most barren regions the power of genius can flourish. The bleak, wild moorlands, with their poverty of natural beauties, were the nursery of rich lives, whose influence—with that of all other lives to whom the Divinity has intimately spoken—still lives, and must live, for long generations. The personal narrative, as related by Mrs. Gaskell, is one of mingled pathos and rarity. Some of the points in the *Life of Charlotte Brontë* it will be advisable to recall to the reader's attention before the works of the three sisters themselves are passed in review. Haworth village, whose parsonage was so long the residence of the Brontës, is in the West Riding of Yorkshire, and situate only a few miles from three towns of considerable importance—Halifax, Bradford, and Keighley. The friend of Charlotte Brontë has endeavored to give some idea of the appearance of the district, but even she fails to depicture it as it existed in the early part of the present century. In addition to the dull, monotonous stretch of moorland, with here and there a "beck" or a crag, as the sole variation for the weary eye, there was a population to be met with which in some respects exhibited no advance whatever over that of the Middle Ages. Nor is this scarcely to be wondered at, for within the knowledge of the present writer, to whom the whole locality is perfectly familiar, there were living a few years ago individuals who had never beheld one of the foremost powers

of civilisation—the railway. Great natural shrewdness undoubtedly was a characteristic of the inhabitants of the Riding, and in many cases a rough kind of *bonhomie* was added, which, however, was frequently made more offensive than positive rudeness. Add to this that there was very little opportunity afforded to the poor for culture—twelve, fourteen, and sixteen hours per day being their constant labor at the factories—and the imagination will have little left to do in forming an estimate of the exoteric existence of the Yorkshire character. The people were, and indeed now are, hard-fisted, but scarcely so much so as the reader of Mrs. Gaskell would gather; for many have a passion for personal adornment, whilst others will spend considerable time and money in attaining proficiency in music, for which they have a natural talent beyond that possessed by the inhabitants of any other county in England. They are good friends and good haters. The misers, mostly, are to be found in the type of small manufacturers or cotton-spinners, who, bereft of many of those graces which should adorn the human character, set themselves with dogged persistency to the making of "brass," as they term wealth. With some the passion is carried to a lamentable, and at the same time amusing excess. A characteristic story is told of a person of this class, who was tolerably rich, and had been seized with illness soon after taking out his policy. When the doctor made him aware of his hopeless state, he jumped up delighted, shouting, "By Jingo! I shall *do* the insurance company! I always was a lucky fellow!" Another trait in people much poorer in station than those just referred to was the fixedness of their religious principles. The doctrine of Election had firmer root in their minds—and indeed has now in those of their successors—than is found to be the case elsewhere. The factory hands would stand at the loom till nature yielded to consumption or to the hardness of the burdens it was called upon to bear, but in the hour of dissolution, as in every hour of sentient existence in the past, would be apparent the conviction that as surely as the sun rose in the morning, so surely were they themselves predestinated to a triumphant salvation, of which it was an impossibility they could be rified by the combined powers of the universe. Amidst

this stern and unyielding race, then, was the lot of the sisters cast, and it would have been strange had not their genius been directed in its moulding by such distinctive surroundings. To understand at all the spirit of their works, it is necessary to have some preliminary knowledge of the kind just indicated. Precocity distinguished the whole trio, though that is not an unfailing sign of future celebrity. When children, their answers to questions were clever and characteristic. Emily, whose intellect was always singularly clear, firm, and logical, when asked what should be done with her brother Branwell, if he should be naughty, instantly replied, "Reason with him, and when he won't listen to reason whip him." And as another indication of the quick ripening of faculties in this remarkable family, it may be mentioned that Mr. Brontë said he could converse with his daughter Maria on all the leading questions of the day when she was only eleven years of age. Early familiar with all the forms of suffering and death, the life of Charlotte Brontë from its commencement to its close may be said to have been one prolonged endurance of agony. Yet the grandeur of her courage must always strike us as one of the sublimest spectacles. When a child she lost those who were dear to her, and there were none who could understand the vast yearnings of her nature. Then came the stirrings of her genius, and she longed to take flight, but her wings were weighted, and she was kept enchained to the dull earth. A few more years, and another trouble, almost worse than death, cast its horrible shadow over her path. The melancholy story of her brother Branwell, whom she loved deeply, in spite of his numberless errors and terrible slavery to one master-passion, is matter of general knowledge. To his end succeeded that of Emily Brontë, the sister whom Charlotte especially loved. To see her drift out into the great Unknown Sea was trouble inexpressible to that loving soul, which had watched her with fostering care, and hoped to have witnessed the universal acknowledgment of her splendid genius. Seldom was the heavy cloud lifted from the head of our author on those dull Yorkshire hills: can it be matter of surprise, then, that her works should bear the impress of the character of her life? The wonder is that the sun should

break through at all, as it does in *Shirley*, with beams of real geniality and cheerfulness. But the life was destructive of that gentler kind of humor of which we are sure Charlotte Brontë must have had originally a considerable endowment. She was necessarily propelled towards the painting of what was frequently harsh, and always peculiar and extraordinary. Her perceptions were keen—as will be admitted by the close student of her works—not only of human life, but of nature, and what she wrote must therefore exhibit the qualities of truth and strength. Severe discipline waited upon her through all her history, and its results are graphically depicted in her works, each of which deals with the experience of some stage of her brief existence. One almost wonders, as we follow her career, where her happiness came from. There was no society, no wealth, none of the common delights of life for her, whilst death was always approaching with measured, but inevitable steps, when not, indeed, already in the house. Doubtless her literary occupations yielded her at times intense enjoyment, but she possessed, in addition, a faith in Providence which must have been like that of a child for simplicity and strength—a faith to which many, who boasted of their Christian excellence, were perfect strangers, and to whom its existence in her was utterly unsuspected.

The iron will of this truly great woman was never broken till the period came when she must yield up her own life. Then the weakness—if such it can be called—which she exhibited, arose not from any fear respecting herself, but for the tender and faithful husband whom she was leaving behind. Desolation, blank and utter, overtook the father and husband when her heart ceased to beat, such as the old parsonage had never experienced before. Charlotte's spirit had nerved others so long as it was with them, and the tement of hope was not completely shattered till she died. The picture Mrs. Gaskell gives of the closing moments and of the funeral is very touching. With regard to the latter it painfully reminded her of the scene after the death of Oliver Goldsmith. Mr. Forster thus describes it:—"The staircase of Brick Court is said to have been filled with mourners, the reverse of domestic; women without a home, without domesticity of any kind,

with no friend but him they had come to weep for; outcasts of that great solitary, wicked city, to whom he had never forgotten to be kind and charitable." Such would have followed Charlotte Brontë's remains to the grave, but the survivors wanted not the sympathy of strangers, their grief being too keen to be assuaged. The detractors of the writer of *Jane Eyre* could have had little real understanding of her. Those who knew her best were the fallen and distressed, to whose wants she had ministered, and, better still, into whose bruised and dejected souls she had poured the sweet balm of sympathy. Such shall judge the woman; as for her genius, that will take care of itself; its fruits are too genuine to be in danger of perishing.

The novels of Charlotte Brontë were totally dissimilar in style to all which had been previously given to the world, and their quality was not such as to be at the first moment attractive. Masculine in their strength, and very largely so in the cast of thought, there could be no wonder that the public should assume Currer Bell to be of the sterner sex, and even persist in its delusion after the most express assurance to the contrary. Certainly one can sympathise with the feeling of astonishment that *Jane Eyre* should have been written by a woman. What vigour there is in it compared with the novels of another great artist, Miss Austen! For sheer force she has even eclipsed her own chief of novel-writers, Sir Walter Scott, whilst Balzac, who, as Currer Bell said, "always left a nasty taste in her mouth," is also outstripped in the delineation of passion. Many readers were doubtless repulsed from a fair and candid perusal of the works of Charlotte Brontë by certain adverse criticisms which had pronounced them extremely coarse. The unfairness of this charge we think it will not be difficult to show presently. Faithful transcripts of the life she had witnessed they certainly were; distorted they were not. Speaking of fiction, the author of *The Curiosities of Literature* has said—"Novels, as they were long *manufactured*, form a library of illiterate authors for illiterate readers; but as they are *created* by genius, are precious to the philosopher. They paint the character of an individual or the manners of the age more perfectly than any other species of composition: it is in novels we observe, as it were passing under

our own eyes, the refined frivolity of the French, the gloomy and disordered sensibility of the German; and the petty intrigues of the modern Italian in some Venetian novels." We accept this as a tolerably substantial appraisal of the *role* of the novelist; but in order to be strengthened in our opinion, let us look at what the eminent philosopher Adam Smith said of the true novelist, and surely no higher praise could be desired by our story-writers. "The poets and romance-writers who," he says, "best paint the refinements and delicacies of love and friendship, and of all other private and domestic affections, Racine and Voltaire, Richardson, Marivaux, and Riccoboni, are in this case much better instructors than Zeno, Chrysippus, or Epictetus." But surely we need not stay to argue here that the novel, when in the hands of a true genius, can be made one of the best instructors of the human race. It is so because there is nothing of the abstract about it—which the mind of mankind generally abhors; it is a record of the concrete existence of individuals like ourselves, and must therefore be profitable both for amusement, interest, and guidance. A good novelist can scarcely be appreciated too highly. In this class we place Charlotte Brontë; she fulfils the requirements glanced at already in the words of Mr. D'Israeli, and is in every respect a faithful delineator of the scenes and persons she professes to describe. How faithful, indeed, few can scarcely tell, but the mass can darkly feel it on close acquaintance with her. The charge of coarseness brought against her works she herself indignantly repelled, but the base notion of such a charge must have cruelly wounded her spirit, which, though strong and brave as a lion, was yet pure and tender as that of a child. She said, "I trust God will take from me whatever power of invention or expression I may have, before He lets me become blind to the sense of what is fitting or unfitting to be said." And it is on record that she was deeply grieved and long distressed by the remark made to her on one occasion, "You know, you and I, Miss Brontë, have both written naughty books!" Mrs. Gaskell goes so far as to admit that there are passages in the writings of Currer Bell which are coarse; for ourselves, we can scarcely understand what is meant. Roughness there is, but indecency none,

and coarseness seems to us to imply a little more than mere roughness. Several of the characters she has drawn are reproductions in type of the wildest natures, and the over-refined sensibilities of some readers are possibly shocked by their extreme naturalness. Charlotte Brontë simply thought of painting them as they appeared, never thinking for a moment there could be harm in laying in deep shadows where deep shadows were required. Fielding was coarse, Wycherley and some of the other dramatists more so, but their examples show that coarseness is an unfortunate epithet to apply to the writings of Currer Bell. If applicable to them, it is totally inapplicable to her. Her coarseness—if such quality exist at all—was undetachable from her subjects. She would have ceased to be the true delineator and the real artist she aspired to be, had she swerved from the outlines of character she undertook to fill in. In truth, we need only turn to *Shirley* and *Jane Eyre* to prove the position that Charlotte Brontë was far beyond the common novelist. In the former story we have characters which for sweetness have been rarely excelled, whilst in the latter we have a Jupiter of rugged strength and passion. The novelist has power to go out of herself—that attribute of the great artist. It is genius which impels, and she must obey. If the characters are occasionally coarse, she is unconscious of it; she is only aware of their truth. No need for her to lop off the distorted branches in the human forest of her delineations in order to secure a level growth of mediocrity. She could not if she would, and is too intent on the manifestations of nature to do so if she could. Such creations as please the ordinary romance-monger would be an abhorrence to her; it is because she exalted Art that she could not depart from the True, with which the former, when real, is ever in unison.

The Professor, which was the first work written by Charlotte Brontë ostensibly for publication, though not by any means her first effort in fiction (what author does not carry the recollection of many juvenile crudities?), exhibits a great amount of conscious power, but also an inability on the part of the writer to give herself free scope. A comparison between this and succeeding works will show how she was cramped in its composition. The story

is good, nevertheless, though numerous publishers to whom it was submitted decided otherwise. Its author has possibly hit upon the reason for its rejection, when in the preface she says she determined to give her hero no adventitious aid or success whatever. He was to succeed, if he did so, by the sheer force of his own brain and labor. "As Adam's son he should share Adam's doom, and drain throughout life a mixed and moderate cup of enjoyment." These principles were of course unpopular; the novel-readers of the day demanded something which should exhibit more of the romantic and the heroic. Battling well, however, with materials which were in the outset obstructive, Currer Bell achieved a substantial success. There can be no doubt that her husband, in consenting to the publication of the volume subsequently, did a wise act. There is much in the work which is characteristic of its author as she appears in her later novels, and the drawing of at least one of the characters, Mr. Hunsden, is masterly. Some of the materials, we are told, were afterwards used in *Villette*; but if so they are carefully disguised, and the world could very well afford to welcome the two. Passages occur in *The Professor* which are almost startling in their strength of passion and eloquence, and which alone would have given to Currer Bell the stamp of originality. All the toilsome way by which the person who gives the title to the volume is led, is marked by the intensest sympathy on the part of the author, and although the reader may not be able to feel much personal enthusiasm in the various characters, he must at once yield the point that he is perusing the thoughts of no common mind. The valuable knowledge which the author acquired abroad is utilised with considerable skill, whilst she is equally at home when she comes to delineate the Yorkshire family of the Crimsworths. Her ideas of love and marriage, afterwards so fully developed in her other novels, are here touched upon. "I am no Oriental," says the Professor: "white necks, carmine lips and cheeks, clusters of bright curls, do not suffice for me, without that Promethean spark, which will live after the roses and lilies are faded, the burnished hair grown gray. In sunshine, in prosperity, the flowers are very well; but how many wet days are there in life—November seasons of disaster—when a man's hearth and

home would be cold, indeed, without the clear, cheering gleam of intellect?" Love without the union of souls, the author again and again insists, is a delusion, the sheen of a summer's day, and quite as fleeting. Altogether the idea of *The Professor* was new, and as an indication of the grooves in which its author's genius was afterwards to run, we would not willingly have lost it. As a psychological study alone it was well worthy of preservation.

But better and more remarkable works followed. The reading world has very seldom been startled by such a genuine and powerful piece of originality as *Jane Eyre*. One can almost gauge the feeling, after reading it, which caused Charlotte Brontë to be such an enthusiastic admirer of Thackeray. He, at any rate, she knew, would appreciate her efforts, for was he not also engaged (with even more splendid talents) in the crusade against conventionality? He, at least, understood her burning words, when she affirmed that "conventionality is not morality, self-righteousness is not religion. To attack the first is not to assail the last. To pluck the mask from the face of the Pharisee, is not to lift an impious hand to the Crown of Thorns." These words will sufficiently show how she endeavored to tread in the steps of "the first social regenerator of the day," and to whom she inscribed the second edition of her most widely known book. *Jane Eyre* is an autobiography, and its intention is to present a plain, unbiassed narrative of a woman's life from its commencement to a period when it is supposed to have ceased to possess interest to mankind generally. It is told fearlessly, and with a burning pen. But there is no *suppressio veri*; that, its author would have scorned: perhaps it would have been better for its reception in some quarters—limited in range we are happy to think—if the narrator of the story had glossed over some portions of her heroine's history. She has chosen, however, to adhere to stern reality, and there it is finally for us, unpleasant and rough though it be in some of its recorded experiences. The book shows the most opposite qualities—light, darkness; beauty, deformity; strength, tenderness. Its pathos is of the finest quality, stirring most deeply because it is simple and unforced. The situations are very vivid; several scenes being depicted which it

would be impossible to eradicate from the memory after the most extensive reading of serial literature. Even those who regard it as coarse must admit its strange fascination. It was a book that could afford to be independent of criticism, and accordingly we find that, before the reviews appeared, anxious and continuous inquiries respecting it began to be made at the libraries. There was not much fiction being written which fixed the public eye, and the issue of this novel almost created an era. Forgotten now is the savage criticism of the reviewer who said of the author of *Jane Eyre*, "She must be one who for some sufficient reason has long forfeited the society of her sex," whilst the work which baffled his judgment, but earned his vituperation, still remains, a memento of real genius which could not be suppressed. Although chiefly remarkable for its prominent delineation of the passion of love in strong and impulsive natures, there are many other points which are noticeable about it, and should therefore be mentioned. The keen observation of the writer is manifest on almost every page. Intense realism is its chief characteristic. The pictures are as vivid and bold as though etched by a Rembrandt, or drawn by a Salvator Rosa. Dickens has been almost equalled by the description of the school at Lowood, to which Miss Eyre was sent, and which might well be described as Dotheboys' Hall. Here, however—melancholy lot!—in addition to indifferent food, supplied in very limited quantities, there was a good deal of threatening about "damnation." The hypocritical minister, Mr. Brocklehurst, had sometimes the worst of it in his dealings with Jane Eyre, as, for instance, in this: "What is hell?" "A pit full of fire." "What must you do to avoid it?" The answer was a little objectionable, as the autobiographer says—"I must keep in good health and not die." As a corrective, she had given to her to read *The Child's Guide*, containing "an account of the awfully sudden death of Martha G—, a naughty child addicted to falsehood and deceit." Certainly if this mental pabulum, combined with the material one of nauseous burnt porridge, was not potent in keeping down the old Adam, it would be impossible to mention an effectual remedy, one would think. As the story progresses it becomes most thrilling, and we are

introduced to a character which is frequently regarded, and not without reason, as Currer Bell's masterpiece of powerful drawing, viz. Mr. Rochester. Strong and yet weak, a very thunderbolt for strength and explosiveness, and yet a bundle of ordinary human weaknesses, this individual stands forth as real and living a portrait as is to be found existing in word-painting. He is attractive in spite of his numerous faults, and where is the character who more stood in need of pity? Picture him at Thornfield, united in wedlock to a raving maniac, who in her paroxysms attempted his life, whilst he, in return, saved hers—that very life which was a curse, and brought unutterable gloom to him. Then, too, he saw the form that he loved, but could not retain, and yet felt the movement of a wicked but ineffable love towards her—wicked, because of the tie which bound him to the wild being who bore his name. Add to all this that his nature was as sensitive as it was intense, and where is the person who could not pity Fairfax Rochester? Behold him again after he has been maimed in the fruitless endeavor to save the maniac from death. He describes himself as “no better than the old lightning-struck chestnut-tree in Thornfield orchard;” but is the process of purification to be counted as nothing which has brought about this result?—

“Jane! you think me an irreligious dog, I dare say; but my heart swells with gratitude to the beneficent God of this earth just now. He sees not as man sees, but far clearer; judges not as man judges, but far more wisely. I did wrong: I would have sullied my innocent flower—breathed guilt on its purity; the Omnipotent snatched it from me. I, in my stiff-necked rebellion, almost cursed the dispensation: instead of bending to the decree, I defied it. Divine justice pursued its course; disasters came thick on me: I was forced to pass through the valley of the shadow of death. His chastisements are mighty, and one smote me which has humbled me for ever. You know I was proud of my strength, but what is it now when I must give it over to foreign guidance as a child does its weakness? Of late, Jane—only—only of late—I began to see and acknowledge the hand of God in my doom. I began to experience remorse, repentance; the wish for reconciliation to my Maker. I began sometimes to pray; very brief prayers they were, but very sincere.”

Verily, this is the epitome of an experience worthy of being sympathised with, and valuable to be written.

There can be no doubt that the first

and greatest cause of the extreme vividness of the writings of Charlotte Brontë and her sisters is the fact that most of the characters depicted are as faithful copies from real life as though an artist had sat down and limned their features. More so: for the artist has nothing to do with psychological characteristics, which, in the case of the authors, are as accurately described as the features. Having fixed upon their subjects for analysis, they clung to them like a shadow or a second self, and the very isolation by which they were surrounded lent strength to their conceptions. The characters are true to their respective natures, and their final ends are fearlessly worked out. Having spoken of the book which made the fame of Charlotte Brontë, let us glance at her next most important work, and the one which we like best of all—*Shirley*. It opens with a chapter in which a vein of humour unsuspected in Charlotte Brontë is manifested, and we know of no other author whose sketches so much remind us of George Eliot as this delineation of the three curates. The writer has completely unbent, relaxed from the severity which so greatly predominates in her other works, and given play to a quiet and yet quaint drollery which is positively irresistible. A little further on, however, we come to more serious business; and the terrible machinery riots which so disastrously retarded commercial progress at the period at which this history is fixed, afford excellent scope for those graphic descriptions in which Currer Bell stands almost unrivalled. The West Riding of Yorkshire, and some parts of Lancashire, were especially subjected to hardships and *émeutes* on account of these improvements and inventions in manufacture, and the sketch of Robert Moore's campaign against the bigoted factory operatives in his employ and that of his neighbors is only a fancy one as regards the disposition of the events. Such things were common at the time of the Luddite riots, but in adopting these riots as the foundation of her story, the author also took characters living in her own day, and at her own door, so to speak, hoping that they would thus pass unrecognised. But the fact that the riots occurred thirty years previously did not blind the people portrayed to the knowledge that they were gazing upon their own portraits. The Yorkes, the three curates, and Mrs. Prior are all por-

traits, whilst Shirley herself is Emily Brontë idealised, or rather what Emily would have been had she been placed in different circumstances. Though the book is singularly strong in individualities, there is, further, more general merit in its writing. Its scenic effects are beautiful; the deep love of nature which possessed the soul of Currer Bell is more observable here than elsewhere. It is what we should describe as a novel good "all round." It has no weak side; it is the most perfect piece of writing the author has left behind her. There is not the terrible sweep of passion we see in *Jane Eyre*; the roughnesses of life are smoothed down a little, and it seems altogether more humanised and humanising. The most opposite events are touched upon skilfully. Who can forget, for instance, the description of the revival in the new Wesleyan Chapel at Briarfield, when "Doad o' Bill's" announced positively that he had "sun' (found) liberty," and the excitement amongst the brethren was intense. Why can't these worthy people take their religion a little more quietly? As our author says on this occasion, "the roof of the chapel did *not* fly off; which speaks volumes in praise of its solid slating." A little further on we get another sample of power, occurring in the description of a female character. "Nature made her in the mood in which she makes her briars and thorns; whereas for the creation of some women she reserves the May morning hours, when with light and dew she woos the primrose from the turf, and the lily from the woodmoss." Again, we find in this novel that although Currer Bell was not a great poetess through the usual medium of measured cadence, she could write fine, genuine poetry in a prose setting. Witness the following description of nature put into the mouth of Shirley:—

"I saw—I now see—a woman-Titan: her robe of blue air spreads to the outskirts of the heath where yonder flock is grazing; a veil, white as an avalanche, sweeps from her head to her feet, and arabesques of lightning flame on its borders. Under her breast I see her zone, purple like that horizon; through its blush shines the star of evening. Her steady eyes I cannot picture; they are clear—they are deep as lakes—they are lifted and full of worship—they tremble with the softness of love and the lustre of prayer. Her forehead has the expanse of a cloud, and is paler than the early moon, risen long before dark gathers; she reclines her bosom on the ridge of Stillbro' Moor; her mighty hands are

joined beneath it. So kneeling, face to face she speaks with God. That Eve is Jehovah's daughter, as Adam was his son."

Our young poets might well covet a power of poetic description like this. As with all true poetry, there is not only the form but the halo. The expression, coming as it did from the feeling, begets in us the feeling again. Other passages of equal beauty could be culled from *Shirley*, gems glittering here and there in a great broad field. Nature, love, happiness, misery, loss, gain, are the themes dilated upon, on each of which much is given to delight, to improve, and to engender sympathy. Charlotte Brontë exhibits a marked contrast in one respect to the greatest female novelist at present living, and perhaps *Shirley* is the clearest example of what we mean. Her faith is unwaivering—faith in the Unseen. But because He is Unseen she would teach us that that is no reason why He should be Unknown. Neither does she form impossible ideals. Shirley is as grand a character in her way as Dorothea Brooke, but we can comprehend her better. And though Shirley's soul was deep, and she had yearnings after greatness, her hopes were not placed beyond fruition, as in the case of Dorothea. The former says: "Indisputably, a great, good, handsome man is the first of created things. I would scorn to contend for empire with him. Shall my left hand dispute for precedence with my right?—shall my heart quarrel with my pulse?—shall my veins be jealous of the blood which fills them?" Some feeling of this kind, of course, Dorothea indulged towards Mr. Casaubon; but in her case the idol is shattered, whilst Shirley obtains in the love of Louis Moore all that she craves for. It was Dorothea's fate to be always finding humanity fail, and created things insufficient to fill the void in her nature. In this sense Shirley is the superior character. Besides her love, she had a truer insight into the means of procuring happiness. She discovered that it must sometimes be worked for with her own hands. Thus, then, was her nature completely rounded. With reverence to the Supreme were added his richest gift of love and the link of benevolence to bind her to the rest of mankind. Not so serenely beautiful as Dorothea, and not perhaps so lofty in intellect, she is yet a more successful character.

On her forehead there is not written—failure.

If the sisters Brontë had early in life been accustomed to mingle in society, and had not been imprisoned within the walls of Haworth parsonage, there can be little question that we should have had more masterly and more general works from their hands. The skill they exhibit in delineating life should not have been confined to the inhabitants of those northern moors, but should have been employed in other haunts and other scenes likewise. Their field has been necessarily restricted, though their genius had full play on the subjects within their reach. But to demonstrate the capacity to turn experience to account wherever it might be obtained, we only need to direct the reader's attention to Charlotte Brontë's latest work, *Villette*. It is redolent of the flavor of Brussels, where the author and her sister spent some years of their lives. To the ordinary English reader it is probably the most uninteresting of all the works of Miss Brontë, as page after page is composed mostly of French, and that sometimes difficult and idiomatic. This doubtless operated to some extent against its popularity with the mass of novel-readers, though the book seems to have earned the most lavish encomiums from the critics. It exhibits, however, the genius neither of *Jane Eyre* nor of *Shirley*: it is, in truth, superior to the fiction of ninety per cent of novelists, but it scarcely warranted the extravagant terms of praise which were showered upon it by the reviewers. These valuable individuals, however, were, as is too often the case unfortunately, wise after the event—that is, they found it tolerably safe to eulogise a new work from the hand of one who had already established her position as amongst the most original writers of the age. One or two of the *dramatis personæ* evoke sentiments of approval on account of their originality, conspicuous amongst them being Mr. Paul Emanuel and Miss de Bassompierre; but on the whole, the book is disappointing, for there is no one character whose fortunes we are anxious to follow; and a novel which fails to beget a personal interest must be said to have lost its chief charm.

Emily Brontë—for it is now time that we should say something of the two other persons in this remarkable trio—was, in certain respects, the most extraordinary of

the three sisters. She has this distinction at any rate, that she has written a book which stands as completely alone in the language as does the *Paradise Lost* or the *Algrim's Progress*. This of itself, setting aside subject and construction, is no mean eminence. Emily Jane Brontë, as is well known, was the youngest but one of the Rev. Mr. Brontë's children, and died before she was thirty years of age. Early in life she displayed a singularly masculine bent of intellect, and astonished those with whom she came in contact by her penetration, and that settlement of character which generally only comes with age. She went from home twice, once to school and once to Brussels, but it was like the caging of a lioness, and her soul yearned for the liberty of home. When in Brussels she attracted and impressed deeply all those who came across her, and M. Heger declared she should have been a man, for "her powerful reason would have deduced new spheres of discovery from the knowledge of the old, and her strong, imperious will would never have been daunted by opposition or difficulty: never have given way but with life." On her return to Haworth she began to lose in beauty but to gain in impressiveness of feature, and she divided her time between homely domestic duties, studies, and rambles. Shrinking entirely from contact with the life which surrounded her, she gave herself up to nature, the result being apparent in her works, which reveal a most intimate acquaintance with the great Mother in all her moods. Her mind was absolutely free to all the lessons which she should teach, and she embraced them with the most passionate longing. "Her native hills were far more to her than a spectacle; they were what she lived in, and by, as much as the wild birds, their tenants, or as the heather, their produce." Her descriptions, then, of natural scenery, are what they should be, and all they should be. Any reader of her works must perforce acknowledge the accuracy of these observations. Her life, however, seemed to be an unprized one, except by that sister who loved her profoundly, and who keenly appreciated her genius as it essayed to unfold its wings in the sun. But whilst she lived the world made no sign of recognition of her strangely weird powers. When illness came her indomitable will still enabled her to present an unflinching

front to sympathising friends. She refused to see the doctor, and would not have it that she was ill. To the last she retained an independent spirit, and on the day of her death she arose and dressed herself as usual. Her end reminds us of that of her brother Branwell whose will was so strong that he insisted on standing up to die and did actually so die. Emily did everything for herself on that last day, but as the hours drew on got manifestly worse, and could only whisper in gasps. The end came when it was too late to profit by human skill. *Wuthering Heights*, the principal work she has left behind her, shows a massive strength which is of the rarest description. Its power is absolutely Titanic: from the first page to the last it reads like the intellectual throes of a giant. It is fearful, it is true, and perhaps one of the most unpleasant books ever written: but we stand in amaze at the almost incredible fact that it was written by a slim country girl who would have passed in a crowd as an insignificant person, and who had had little or no experience of the ways of the world. In *Heathcliff*, Emily Brontë has drawn the greatest villain extant, after Iago. He has no match out of Shakespeare. The Mephistopheles of Goethe's *Faust* is a person of gentlemanly proclivities compared with *Heathcliff*. There is not a redeeming quality in him; his coarseness is very repellent; he is a unique specimen of the human tiger. Charlotte Brontë in her digest of this character finds one ameliorating circumstance in his favor, one link which connects him with humanity—viz., his regard for one of his victims, Hareton Earnshaw. But we cannot agree with her: his feeling towards Earnshaw is excessively like that feline affection which sometimes destroys its own offspring. As to his alleged esteem for Nelly Dean, perhaps also the less said about that the better. But *Wuthering Heights* is a marvelous curiosity in letters. We challenge the world to produce another work in which the whole atmosphere seems so surcharged with suppressed electricity, and bound in with the blackness of tempest and desolation. From the time when young *Heathcliff* is introduced to us, "as dark almost as if he came from the devil," to the last page of the story, there is nothing but savagery and ferocity, except when we are taken away from the persons to the scenes of the narratives, and treated to those pic-

tures in which the author excels. The Heights itself, the old north-country manor-house, is made intensely real to us, but not more so than the central figure of the story, who, believing himself alone one night, throws open the lattice, and cries with terrible anguish—"Cathy! oh, my heart's darling. Hear me this once. Catherine, at last!" Then his history is recapitulated, by one who witnessed his life in all its stages; and in the passage where Catherine informs her nurse that she has promised to marry Edgar Linton, but ought not to have done so, we get the following example of concentrated force:—

"I have no more business to marry Edgar Linton than I have to be in Heaven. But it would degrade me to marry *Heathcliff* now; so he shall never know how I love him, and that not because he's handsome, Nelly, but because he's more myself than I am. Whatever our souls are made of, his and mine are the same; and Linton's is as different as moonbeams from lightning, or frost from fire. . . . Who is to separate us? they'll meet the fate of *Milo*. I cannot express it; but surely you and everybody have a notion that there is, or should be, an existence of yours beyond you. What were the use of my creation if I were entirely contained here? My great miseries in this world have been *Heathcliff's* miseries, and I watched and felt each from the beginning; my great thought in living is himself. If all else perished and he remained, I should still continue to be; and if all else remained and he were annihilated, the universe would turn to a mighty stranger; I should not seem a part of it. My love for Linton is like the foliage in the woods: time will change it, I'm well aware, as winter changes the trees. My love for *Heathcliff* resembles the eternal rocks beneath: a source of little visible delight, but necessary. Nelly, I *am* *Heathcliff*! He's always, always in my mind; not as a pleasure any more than I am always a pleasure to myself, but as my own being."

Then comes Catherine's death—when she asks forgiveness for having wronged him, and *Heathcliff* answers, "Kiss me again; and don't let me see your eyes! I forgive what you have done to me. I love my murderer—but *yours*! How can I?" The tale of woe proceeds; the despairing man longing for the dead, until at last he faces death, and being asked if he will have the minister, replies—"I tell you I have nearly attained my Heaven; and that of others is altogether unvalued and uncoveted by me." He then sleeps beside her: the tragedy of eighteen years is complete. A great deal has been said on the question whether such a book as *Wuthering Heights* ought to be written, and Charlotte Brontë herself felt impelled to utter some words of defence for it. Where the

mind is healthy it can do no harm; but there are possibly organisations upon whom it might exercise a baleful influence. With regard to the drawing of Heathcliff, Currer Bell scarcely thought the creation of such beings justifiable, but she goes on to say that "the writer who possesses the creative gift owns something of which he is not always master—something that, at times, strangely wills and works for itself." We are afraid that if this opinion were pushed to its logical issues it would be found incapable of being supported. A multiplication of such books as *Wuthering Heights* without corresponding genius would be a lamentable thing, no doubt; yet, while we cannot defend it altogether possibly as it stands, we should regret never having seen it, as one of the most extraordinary and powerful productions in the whole range of English literature.

Anne Brontë, the youngest of the three sisters, was unlike Charlotte and Emily in disposition and mental constitution. She was not so vigorous, and seemed more dependent upon the sympathy of others. These characteristics are apparent in her works, though in her principal novel there are touches which almost remind one of Emily. She was, nevertheless, deficient in the energy which distinguished her sisters, and was altogether frailer in body, and more tender and serene in spirit. The devotional element in her nature was very strong, as will be seen from a perusal of her poems. Her sensitiveness was great, and apt to be wounded by the bitter experiences she was called upon to endure as one of the class of ill-treated individuals called governesses. Some of these experiences she has commemorated in her story *Agnes Grey*, which, however, shows no notable powers of penetration and insight such as the world had been accustomed to look for in the authors bearing the cognomen of Bell. It is the most inferior of all the works written by the sisters, though interesting in many aspects. Possessed of a less determined will than Emily, Anne Brontë bore her sufferings patiently, and as the hour of dissolution approached, the terrors which had bound her spirit were dissipated, and she passed away, we are assured, in a calm and triumphant manner. Her last verses are most beautiful in sentiment, and worked out with considerable skill. It is a curious question how this

gentle woman, nevertheless, came to write such a narrative as *The Tenant of Wildfell Hall*, which in some of its details is more offensive and repulsive than the great *pidce de resistance* of her next elder sister. The drunken orgies of Mr. Huntingdon and his companions cannot fail to be disgusting to the reader, vivid though the relation may be in color. Most probably that portion of the story was suggested by the sad practical acquaintance the author had been compelled to make of the effects of the vice of drunkenness in her brother Branwell. The sorrow entailed by his conduct weighed upon her deeply, and she gave relief to her feelings by picturing the sin with all its hideous consequences and deformity through the medium of fiction. It might be that she had hope such a revelation would be effective for good, and certainly all who read the story cannot but be affected by that wretched portion of it devoted to the delineation of a drunkard. It is the strongest, the most striking part of the volume, and the mystery of its production by such a pure soul as Anne Brontë's can only be explained on the hypothesis we have assumed. The love of Gilbert Markham for the attractive and clever widow is a delightful episode, and excellently told, and the closing chapters go very far to redeem the unpleasantness we were compelled to encounter in the body of the work. As with Emily, Anne Brontë's strong point as a novelist was in the delineation of one grand master passion from the moment when it entered into the soul to the time when it assumed complete and undisputed possession of it. We see this tyranny of passion in Heathcliff; we behold the tyranny again in another direction in Mr. Huntingdon. In both cases, however, it is finally left with as repulsive an appearance as the graphic pencils of the artists were able to command. No one can affirm that vice is ever winked at; it is, on the contrary, drawn without cloak or veil, in order that its devotees may be ashamed, or that those who are in danger of becoming its victims may be arrested and appalled. Such, we take it, is the great lesson of *The Tenant of Wildfell Hall*, and readers, even without sympathy for the author, would be unjust to affirm that the lesson is not taught with sufficient distinctiveness and force. There are some things which only need to be de-

scribed to be abhorred; and this feeling probably led to the production of the work just alluded to.

Of the little volume of poetry written conjointly by Currer, Ellis, and Acton Bell, and published before their prose works, there is not much to be said, except that it might teach a lesson to some of the poets of the present day, that the best inspiration after all is to be derived from contact with Nature herself. Many of these verses are not only Wordsworthian in their simplicity of expression, but also in their reverent feeling for the Great Teacher of all true poets. They are rills which spring from the best source of inspiration, and, while they do not lose the idiosyncrasies of their respective authors, are all imbued with intense love of outward beauty, and breathe of the native heath upon which they were in most part written. The poems which bear traces of the highest flight of imagination are undoubtedly those of Ellis Bell. Her genius here attains a more refined expression, without losing anything of its power. In several instances she has surrounded an old subject with new and delightful interest, and even where her choice has fallen upon more sombre subjects, the originality is so great that we are lost in admiration, and enter fully into the theme, glad of the new thoughts even when the old theme, *per se*, has no charms for us. Amongst the many fine things which have been said of Memory, where are there four lines which concentrate so much regret as are found embedded in this utterance?—

I dare not let it languish,
Dare not indulge in memory's rapturous pain;
Once drinking deep of that divinest anguish,
How could I taste the empty world again?

This was no maundering of a simply sentimental spirit, but the outcome of a soul that had suffered, and had not lost its strength, though a deep sorrow encompassed it, and obscured its vision. There was not the light that shone in the old days, and the regret that has overtaken many a heart formed a truthful and fine utterance in one who was gifted with a power of expression beyond her fellows. But the last lines which this wonderfully-gifted woman ever wrote strike us as being specially noteworthy. They are an address to the Deity: space fails us to quote

them all, but as a specimen of their strength we may give the following:—

Vain are the thousand creeds
That move men's hearts; unutterably vain;
Worthless as withered weeds,
Or idlest paths amid the boundless main.

To waken doubt in one
Holding so fast by Thine infinity.

Though earth and man were gone,
And suns and universes ceased to be,
And Thou wert left alone,
Every existence would exist in Thee.

There is not room for death,
Nor atom that His might could render void;
Thou, Thou art Being and Breath,
And what Thou art may never be destroyed.

We will not stay to investigate the theology of this passage, but as a specimen of poetic vigor it is well worthy of reprinting. The poems of Charlotte Brontë strike us as being the least excellent in the collection. Correct as they are in sentiment and expression, they lack the emphasis to be perceived in those of her sisters. The probability is that while Emily and Anne Brontë would have attained considerable eminence as poets, Charlotte would have wasted her powers on a branch of literature to which she was not quite adapted. In the case of Emily, the brief, decisive, epigrammatic form of expression suited her genius, just as the devotional cadence suited that of Anne, but Charlotte had better scope in a more didactic and extended style. One spirit breathes through the poems of Acton Bell—that which animates the trembling suppliant appealing to Heaven. They are all a single cry couched in different, but exquisite language, the cry of a dependant for guidance by a Sovereign hand. The moods may differ, but the substance of the soul's aspiration is the same, and there are few sweeter religious poems than that which contains the last thoughts and wishes of Acton Bell. The verses are so well known that we refrain from reproducing them; but they may be taken as a good illustration of the spirit which animated the author, and form a touching farewell to a world in which she could never be said to have been at home.

With regard to the position which the Brontës occupy amongst authors, we express ourselves with some diffidence. In summing up their general merits, and pronouncing upon their works, it must be done

as a whole, and with no singling out of particular excellences. So, whilst Charlotte Brontë infinitely eclipses novelists of the highest reputation in isolated qualities—such as those we have already endeavored to point out—it must be confessed that when we speak of her as the artist it cannot be as pertaining to the very highest rank. Her genius is intense, but not broad, and it is breadth alone which distinguishes the loftiest minds. But if she fails to attain the standard of the few writers who have been uplifted by common consent to the highest pinnacle of fame, she is the equal of any authors of the second rank. It is not too much to predict, in fact, that many meretricious works which have been commended for public admiration will lose in popularity, while those of which we have been speaking will increase. It is impossible for two of the works of Charlotte Brontë to fall out of our literature. They have been stamped as genuine gold and will keep continually in circulation. Works which fail to pass this ordeal are those which are either weak or false; these are both strong and true. We obtain from the author of *Jane Eyre* no multitude of characters,

but those we do get we become closely familiar with—and one being of veritable flesh and blood is worth a thousand insubstantial imitations. The novels deal with no particular forms of religious belief, or social questions, which the author would doubtless but have regarded as accidents of which she cared to take no account; and hence we may affirm that after the lapse of fifty years her works would read as freshly as when they first made their appearance. It was humanity she strove to produce; not its creeds, crotchets, or peculiarities; and it is for this reason that the labor will triumphantly stand the test of time. The inner life of a soul is very much the same in all ages. Its hopes, its fears, and its joys do not change with the changing seasons and the revolving years. Ages pass away, and those writers and writings which have only appealed to transient phases of thought or particular changes of society are swept away as by a resistless current, whilst those who defy the potency of the waves are the gifted few who have shown the genuine power of interpreting nature, or of dealing with the passions of the human heart.—*Cornhill Magazine*.

THE PLANET MARS: AN ESSAY BY A WHEWELLITE.

THE planet Mars has returned to our nocturnal skies, after being unfavorably placed for rather more than two years. He now shines throughout the night as a ruddy star in the constellation Virgo—distinguished by his superior lustre, as well as by his color and the steadiness of his light, from the leading brilliants of that constellation. Night after night, he will rise earlier, becoming towards July and August an evening star in the ordinary sense of that expression—for, strictly speaking, he is already an evening star.

When Mars was last in a favorable position for observation, there appeared in the pages of this Magazine an essay, entitled *Life in Mars*,* describing the considerations which have led astronomers to believe that in this planet conditions may prevail which would render life possible for such creatures as we are familiar with on earth. That essay dealt, in fact, with the arguments which would have been employed

by Brewster in maintaining his position against a Whewell of the present day. We propose in the present essay to discuss certain considerations which point in a different direction, and would certainly not be left untouched by Whewell if he now lived, and sought to maintain his position against the believers in more worlds than one.

It is a little hard, perhaps, that an attack should be made against the habitability of Mars; for, though we are in the habit of speaking somewhat confidently of life in other worlds, it is, as a matter of fact, in Mars alone that astronomers have hitherto recognised any approach to those conditions which we regard as necessary for the requirements of living beings. All that is known about Mercury and Venus, tends to the conclusion that very few of the creatures existing on our earth could live in either planet—and assuredly man is not among those creatures. It is not merely that in both these planets the average daily supply of heat is far greater than we could endure unscathed, but that from the pose

* See *ECLLECTIC* for August, 1871.

of these planets—the slope of their axes to the level of their path—the supply of heat varies greatly in amount, so that at one time there is much more than even that average supply which we could not bear, and at another no heat is received at all for many days in succession, or else a supply so small in quantity that beings like men would perish with the resulting cold. And when passing beyond Mars, and traversing the wonderful ring of small planets, we come to Jupiter, where, so far as direct solar heat is concerned, we are assured that there is not a tithe of the supply which would be necessary for beings like ourselves. For the gap between Mars and Jupiter is quite unlike that which separates Mars from the earth, and the earth from Venus (referring of course to the paths of these bodies). From Mars to Jupiter is fully six times the distance from the earth to Mars, and the solar light and heat at Jupiter are reduced to less than the ninth part of the light and heat which are received by Mars. Of course Saturn, Uranus, and Neptune are still less fitted to be the abodes of creatures such as those which inhabit the earth.

Mars alone had given promise of habitability in the ordinary sense of the term. And the study of Mars had revealed many interesting results, apparently confirming in a striking manner the opinion that he is a “miniature of our earth”—a globe resembling the earth in physical habitudes, and like her the abode of living creatures, amongst which may be races resembling man. We know that Mars is not so very much farther than the earth from the sun, as at a first view to dispose of all idea that he is inhabited. His year is not so much longer than ours as to render our conceptions of his seasons incompatible with the existence of vegetable life resembling that which exists on the earth. Then we know that his seasons resemble those of the earth in their range: his arctic, temperate, and torrid zones occupy nearly the same relative portions of his globe as ours do. His day, again, only differs from the terrestrial day by about thirty-seven minutes. Water certainly exists on his surface, and the vapor of water is present in his atmosphere. Oceans and continents can be recognised on his globe—they have even been mapped and charted, and globes have been formed of the ruddy planet. The polar snow-caps of Mars can also be seen, and their increase and diminution with the varying seasons

can be readily recognised. The signs of cloud and mist and rain, ocean-currents and air-currents, have also been traced. In fine, everything which one could hope to find as indicative of the habitability of so distant a world, has been seen in Mars; and accordingly it is not greatly to be wondered at if the theory that he is inhabited, and by beings not very unlike those existing on our earth, should have been comfortably accepted by most of those who have considered the subject.

Yet there has always been a serious difficulty in the way. Although the distance of Mars from the sun is not so much in excess of the earth's as to *compel* us to forego the idea that he is suitably warmed and lighted (reference being always made to the wants of such creatures as we are familiar with), yet there is a sufficient discrepancy to render it somewhat surprising that the meteorological conditions on Mars should apparently resemble those on the earth very closely. This would not be the place for nice calculations, and therefore we give results without entering into the details of the processes by which they have been obtained. It is the case, then, that the average daily supply of light and heat on Mars (square mile for square mile of his surface) is less than the supply on the earth in the proportion of two to five. When he is at his nearest to the sun, the daily supply amounts to rather more than a half that received by the earth; but when he is at his farthest, the daily supply falls to little more than one-third of the earth's.

This is a very serious deficiency when rightly understood. We must not content ourselves by comparing it to the difference between the heat of a winter day and a summer day. We often have to endure for several days in succession a much greater degree of cold than would follow from the mere reduction of the sun's ordinary heat to one-third its present value, and the deficiency is not destructive to life. But it would be quite another matter if the whole supply of light and heat to the earth were reduced in this proportion. It must be remembered that to that supply we owe the continuance of all the forms of force, including vitality, on the whole earth. “The sun's rays,” said Sir John Herschel in 1833,* “are the ultimate source of al-

* Before the notion had suggested itself to Stephenson, to whom it is commonly referred.

most every motion which takes place on the surface of the earth. By its heat are produced all winds and those disturbances in the electric equilibrium of the atmosphere, which give rise to the phenomena of lightning, and probably, also, to terrestrial magnetism and the aurora. By their vivifying action vegetables are enabled to draw support from inorganic matter; and become in their turn the support of animals and man, and the source of those great deposits of dynamical efficiency which are laid up for human use in our coal strata. By them the waters of the sea are made to circulate in vapor through the air, and irrigate the land, producing springs and rivers."

What would happen if the source of all these processes, of every form, in fact, of force existing and acting on the earth, were to lose more than one-half of its power? We can answer this question best by another. What would happen if the engine working a mighty system of machinery were deprived of more than one-half its due supply of fuel? The engine might continue to work, but it would no longer work efficiently: the machinery would no longer serve its purpose. And in like manner, the great machinery, which is maintained by solar action on the earth, would no longer subserve its purpose—or if the vocabulary of teleology must be eschewed, this great machinery would no longer do what it is actually doing, it would no longer maintain active life upon the earth. If life still continued it would be sluggish, little more, in fact, than living death.

And if the failure of the solar supply at this present time would lead to such a result, how much more completely fatal to the existence of all such life as we now see upon the earth, would have been a defalcation of solar light and heat during the long-past ages when so many forms of force were stored up. To take one such form alone, and to consider it only as it affects the requirements of our own country—"the 'deposits of dynamical efficiency' laid up in our coal strata are simply," as Tyndall tells us, "the sun's rays in a potential form." We dig from our pits annually a hundred million tons of coal, the mechanical equivalent of which is of almost fabulous vastness. The combustion of a single pound of coal in one minute is equal to the work of three hundred horses for the

same time. It would require one hundred and eight millions of horses working day and night with unimpaired strength for a year to perform an amount of work equivalent to the energy which the Sun of the Carboniferous Epoch invested in one year's produce of our coal-pits.

If Mars then not only receives day by day a much smaller supply of light and heat than our earth, but has been similarly circumstanced during all those past ages which supply the facts studied by geologists, what opinion must we form as to his present fitness to be the abode of creatures like those which exist upon our earth? It appears to us that there can be but one answer to this question. Our only doubt must depend on our acceptance of the opinion on which the question is based. If in any way the supply of heat has been increased, or—which amounts to the same thing—if a greater portion of the direct supply has been stored up, then, and then only can we regard Mars as a suitable abode for living creatures like those on the earth. For we may dismiss the supposition that the inherent heat of Mars's globe is such as to compensate for a deficiency in the supply of solar heat. So far is this from being at all probable, that on the contrary an additional difficulty is introduced by the consideration that in all reasonable likelihood Mars must have parted with a very much greater proportion of his inherent heat than our earth. His globe is very much smaller than that of the earth, and the total quantity of matter contained in it is little more than one-ninth of the matter contained in the earth's globe. Now, it is known that of two bodies equally heated, the smaller cools more rapidly than the larger. And certainly we have no reason to believe that at any epoch Mars was hotter than the earth at the same epoch. We should infer, indeed, that Mars was always much the less heated body. For according to the most generally received explanation of the original intense heat of the planets, such heat had its origin in the rush of matter drawn in by the attractive might of the aggregation which was, so to speak, the embryo of the planet. Thus the smaller planets, which must necessarily have had less attractive energy than the larger, would impart a less velocity to the intruding matter, and therefore would be

less intensely heated. On all accounts it would follow that Mars is, at the present time, a much colder body than the earth.

Our sole resource, therefore, if we are to adopt the theory that the climate of Mars resembles that of the earth, is to assume that there is some peculiarity in his atmosphere by which it is enabled to retain a larger proportion of the heat received from the sun than happens in the case of our own atmosphere. If we are further to assume that the constitution of the atmosphere resembles that of our air—and no other assumption is compatible with the belief that creatures such as we are familiar with can exist in Mars—we must assume that the Martian atmosphere is much more dense than our own. We need not enter here into the considerations on which this inference is based. Let it suffice to remark that there is a steady decrease of warmth with elevation in all parts of the earth, this decrease being unquestionably due to the greater tenuity of the air in high regions. And it is certain that if the density of the air were in any way increased, there would be a corresponding increase of warmth.

But when we apply this consideration to the case of Mars we find a difficulty in the disproportionate amount of atmosphere which must be assigned to this small planet. It seems a very natural and probable assumption that every planet would have an atmosphere proportional in quantity to the quantity of matter in the planet. Thus since the mass of Mars is but about one-ninth of the earth's mass, we should infer that his atmosphere amounted in quantity to but one-ninth part of the earth's atmosphere. Of course we could not lay any stress on such an assumption; but it must be regarded as more probable, on *a priori* grounds, than any other. This would leave Mars with much less air over each square mile of his surface than there is over each square mile of the earth's surface: for the surface of Mars is much greater than a ninth part of the earth's; it is, in fact, between a third and a fourth of the earth's surface. But this is not all; not only (on the assumption we are dealing with) would there be much less air over each mile of the surface of Mars, but this smaller quantity of air would be much less strongly attracted towards the surface of the planet. For, owing to his small bulk and the comparative

lightness of the materials of which he is constructed, Mars exerts less than two-fifths of the attractive force which our earth exerts. A mass which, on our earth, would weigh a pound, would on Mars weigh little more than six ounces; and the atmospheric pressure would be correspondingly reduced, even though Mars had as much air above each square mile of his surface as there is above each square mile of the earth's. This quantity of air would be twice as much as we should infer from the mass of Mars, and we should require five times as much air only to have an atmosphere as dense as our own at the sea level. An atmosphere about twice as dense as this would perhaps give a climate as mild, on the average, as that of our earth. But it seems rather a daring assumption to assign to Mars an atmosphere exceeding *ten* times in quantity what we should infer from the planet's mass.

It seems, on the whole, safer to abandon the theory that Mars is a suitable abode for such creatures as exist on the earth; and to try to explain observed appearances unhampered by a theory which after all is not in itself a probable one. For indeed we can employ in a very effective way against this theory a mode of argument which is commonly urged in its favor. It is reasoned that since the earth, the only planet we know, is inhabited, therefore probably the other planets are so. But we have seen that, so far as the evidence goes, all the other planets, save Mars alone, are probably not inhabited by beings such as those which exist upon the earth. Therefore, even on *a priori* grounds, it is more likely that Mars is similarly circumstanced; since there are six planets in favor of this inference, and only one, our earth, against it.

In resuming the inquiry, with the theory of Mars's habitability abandoned for the nonce, we must recall the facts which have been demonstrated respecting Mars, only we may now view them in a new light. We remember that he has polar snow-caps; but we are no longer bound to regard these snow-covered regions as in any sense resembling our arctic regions. Again, the seas and oceans of Mars may be permanently frozen throughout the greater part of their depth. The water-vapor which is certainly present in his atmosphere may be raised only by the

midday sun, to be precipitated in early evening. Winds and currents may equally well prevail in a rare as in a dense atmosphere. The white masses which have been compared to clouds, and whose dissipation has been held to imply the downfall of rain on Mars, may not be rain-clouds, but snow-clouds; or where there is no downfall, they may be not cumulus-clouds, but cirrus-clouds,—that is, not such clouds as are raised in our dense air near the sea-level by the sun's warmth, but such light fleecy clouds as are suspended high above the loftiest mountain summits.

It appears to us, indeed, that if we make any change at all in our views about Mars, we must make a great change. If we suppose the Martian air moderately dense, comparable in density at any rate with our own air, then since we know that considerable quantities of aqueous vapor are raised into that air, we seem compelled to conclude that there would be a precipitation of snow (under the circumstances already considered) which should keep the surface of Mars as permanently snow-covered as our mountain-heights above the snow-line. As this is not the case, for Mars is not a white planet, we *must* assume so great a rarity of the Martian atmosphere that sufficient water-vapor can never be raised into that air to produce a permanent snow-envelope by precipitation. This view (on which we shall presently touch again) of course accords well with the *à priori* opinion respecting the Martian atmosphere referred to above. And therefore it seems to us manifestly the most probable and satisfactory course to assume that the Martian atmosphere bears about the same relation to ours in quantity which the mass of Mars bears to that of the earth. On this assumption it is easily shown that the atmospheric pressure on Mars corresponds to about four and a half inches of the mercurial barometer. We may take five inches as a fair probable estimate of the height of Martian barometric tubes, supposing there are any reasoning creatures on Mars who have made the same discovery as our terrestrial Torricelli.

At this stage it may be interesting to inquire whether the mere tenuity of the Martian air, on our assumption, would be a fatal objection to the theory that creatures like men can live on the planet.

Could any man, for instance, exist for any length of time in an atmosphere corresponding in pressure to only four or five inches of the common barometer? or could any race of men, after a gradual process of acclimatisation, become enabled not merely to live in such an atmosphere, but to thrive as a race, to undergo ordinary labors, to travel without being easily exhausted, and if need were, to defend themselves against their enemies or from sudden natural dangers?

The experiment has never yet been tried. Nor is it easy to see now it could be. Aëronauts have reached a height where the atmospheric pressure has been reduced to below seven inches of the common barometer; but in attaining this height they were exposed to other effects than those due to the mere tenuity of the atmosphere. We refer here to the celebrated ascent by Coxwell and Glaisher, on July 17, 1862, when the enormous elevation of 37,000 feet was attained, or nearly two miles above the summit of the loftiest mountain of the earth. But, although the circumstances of such an ascent do not altogether correspond to those depending solely on atmospheric rarity, it is probable that the most remarkable effects result from this cause, and therefore it will be well to consider what happened to the aëronauts in this journey. "Previous to the start," says Flammarion, in a work edited by Mr. Glaisher, "Glaisher's pulse stood at 76 beats a minute; Mr. Coxwell's at 74. At 17,000 feet, the pulse of the former was at 84; of the latter at 100. At 19,000 feet, Glaisher's hands and lips were quite blue, but not his face." At this height the atmospheric pressure was reduced to about one-half the pressure at the sea-level; in other words, the pressure corresponded to about fourteen and a half inches of the mercurial barometer. After passing beyond this height, distressing symptoms were experienced by both aëronauts. "At 21,000 feet, Glaisher heard his heart beating, and his breathing was becoming oppressed; at 29,000 feet, he became senseless, and only returned to himself when the balloon had come down again to the same level. At 37,000 feet, Coxwell could no longer use his hands, and was obliged to pull the string of the valve with his teeth. A few minutes later he would have swooned away, and probably lost his life. The temperature of the

air was at this time twelve degrees below zero." This certainly does not suggest that life on the earth would be pleasant, if the air were reduced in quantity to that above the level reached by Coxwell and Glaisher on this occasion. But the barometer still stood nearly seven inches high when they began to descend, at which time Glaisher was nearly two miles above his fainting level, while Coxwell was all but powerless. And then it is to be remembered, as Flammarion well remarks, that in balloon ascents "the explorer remains motionless, expending little or none of his strength, and he can therefore reach a greater elevation before feeling the disturbance which brings to a halt at a far lower level the traveller who ascends by the sole strength of his muscles the steep sides of a mountain." What would be the state of a traveller having to exert himself in an atmosphere reduced to five-sevenths of the density of the air in which Coxwell was just able to save his own life and Glaisher's,—literally "by the skin of his teeth?"

To show the effect of active exertion in increasing the unpleasant results of great atmospheric tenuity, we may quote the experience of De Saussure, in his ascent of Mont Blanc, noting however that recent Alpine travellers seem to have been more favored, while the guides would appear to have become more inured to the hardships of high places than they were in 1787. We learn that "at 13,000 feet, upon the Petit-Plateau, where he passed the night, the hardy guides, to whom the previous marching was absolute child's play, had only removed five or six spades-full of snow in order to pitch the tent, when they were obliged to give in and take a rest, while several felt so indisposed that they were compelled to lie upon the snow to prevent themselves from fainting. The next day," says De Saussure, "in mounting the last ridge which leads to the summit, I was obliged to halt for breath at every fifteen or sixteen paces, generally remaining upright and leaning on my stock; but on more than one occasion I had to lie down, as I felt an absolute need of repose. If I attempted to surmount the feeling, my legs refused to perform their functions; I had an initiatory feeling of faintness, and was dazzled in a way quite independent of the action of the light, for the double crape over my face entirely sheltered the

eyes. . . . The only thing which refreshed me and augmented my strength was the fresh wind from the north. When, in mounting, I had this in my face, and could swallow it down in gulps, I could take twenty-five or twenty-six paces without stopping."

It must not be overlooked, however, that some of the effects thus experienced appear to be due to the presence of impure air. For experiments made by De Saussure showed that air near the surface of snow contains less oxygen than the surrounding air; and Boussingault points out respecting "certain hollows and enclosed valleys of the higher part of Mont Blanc—in the *Corridor*, for instance—that people generally feel so unwell when traversing it that the guides long thought this part of the mountain impregnated with some mephitic exhalation. Thus even now, whenever the weather permits, people ascend by the *Bosses* ridge, where a purer air prevents the physiological disturbances from being so intense."

There are, indeed, parts of the earth where at an elevation nearly as great as that at which De Saussure experienced such unpleasant effects, the inhabitants of considerable cities enjoy health and strength. As Boussingault well remarks, "When one has seen the activity which goes on in towns like Bogota, Micuipampa, Potosi, &c., which have a height of from 8,500 feet to 13,000 feet; when one has witnessed the strength and agility of the torreadors in a bull-fight at Quito (9,541 feet); when one has seen young and delicate women dance for the whole night long in localities almost as lofty as Mont Blanc; when one remembers that a celebrated combat, that of Pichincha, took place at a height as great as that of Monte Rosa (15,000 feet), it will be admitted that man can become habituated to the rarefied air of the highest mountains." These places are, however, tropical, and it is manifest that cold plays an important part in producing the unpleasant sensations which are experienced in elevated regions. Since in Mars (according to our present assumption) we have not only a much greater atmospheric rarity than at the highest peak of the Himalayas, but also a much greater degree of cold than at such a height even in high latitudes, it is manifest that absolute uninhabitability by human beings must re-

sult. Nay, since no living things except microscopic animalcules exist above certain elevations, or when a certain degree of cold is experienced, it remains clear that Mars cannot possibly be inhabited by creatures resembling any of the higher forms of living beings with which we are familiar on earth. "Beyond the last stage of vegetation, beyond the extreme region attained by the insect and mammifers, all becomes silent and uninhabited," says Flammarion, "though the air is still full of microscopic animalcules which the wind raises up like dust and which are disseminated to an unknown height."

But the reader may be led to ask, at this stage, what is actually taking place in Mars when our astronomers perceive signs as of clouds forming and dissolving, of morning and evening mists, and other phenomena, not compatible, it should seem, with the idea of extreme cold. Nay, it is to be remembered that even the presence of ice and snow implies the action of heat. "Cold alone," says Tyndall, "will not produce glaciers. You may have the bitterest north-east winds here in London throughout the winter without a single flake of snow. Cold must have the fitting object to operate upon, and this object—the aqueous vapor of the air—is the direct product of heat." It is manifest, then, that the sun exerts enough heat on Mars to raise the vapor of water into the planet's atmosphere (as indeed spectroscopic analysis has taught us), and it is also clear that this vapor must be conveyed in some way to the Martian arctic regions, there to be precipitated in the form of snow. And then this difficulty is introduced: According to our ideas the whole surface of Mars is above the snow-line; any region on our earth where so great a degree of cold prevailed accompanied by so great an atmospheric tenuity would be far above the snow-line even at the equator. How is it then that the snow ever melts, as it manifestly does, since we can see the ruddy surface of the planet?

An explanation, first suggested, we believe, in Mr. Mattien Williams's ingenious book called *The Fuel of the Sun*, removes this difficulty. The snow actually falling on Mars must be small in quantity, simply because the sun's heat is not competent to raise up any great quantity of water vapor. There cannot, then, be any

thing like the accumulation of snow which gathers in regions above our snow-line; but instead of this there must exist over the surface of Mars except near the poles a thin coating of snow, or rather there will be ordinarily a mere coating of hoar frost. Now the sun of Mars, though powerless to raise great quantities of vapor into the planet's tenuous atmosphere, is perfectly competent to melt and vaporize this thin coating of snow or hoar frost. The direct heat of the sun, shining through so thin an atmosphere, must be considerable wherever the sun is at a sufficient elevation; and of course the very tenuity of the air renders vaporization so much the easier, for the boiling point (and consequently all temperatures of evaporation at given rates) would be correspondingly lowered.* Accordingly, during the greater part of the Martian day, the hoar frost and whatever light show might have fallen on the preceding evening would be completely dissolved away, and thus the ruddy earth or the greenish ice-masses of the so-called oceans would be revealed to the terrestrial observer. We may picture the result by conceiving one of those Martial globes which Captain Busk has recently caused Messrs. Malby to make from Mr. Proctor's charts, to be first coated with thin hoar frost, and then held before a fire just long enough to melt the hoar frost on the part of the globe nearest to the fire, leaving the features of the rest of the globe concealed from view under their snow-white veil.

Those who have seen Mars under good telescopic "power" will at once recognise the exact agreement between this hypothetical process and the actual appearance of the planet. All round the border of the disc there is a white light, completely concealing all the features of the Martian continents and oceans. Of this peculiarity no satisfactory explanation has

* Amongst other disadvantages presented by Mars, regarded as an abode for beings like ourselves, is the circumstance that if his atmosphere be in proportion to his mass, as we have assumed, it must be impossible to boil food properly on the ruddy planet. For water would boil at a temperature about seventy degrees below our boiling point, so that it would barely be heated enough to parboil. A cup of good tea is an impossibility in Mars, and equally out of the question is a well-boiled potato. It does not make matters more pleasant that the tea-plant and the potato are impossible, of themselves, on Mars, and that therefore the possibility of boiling them may be regarded as a secondary consideration.

hitherto been advanced. Mr. Proctor, indeed, has shown how the peculiarity would present itself if the Martian atmosphere were loaded with rounded clouds resembling our summer woolpack clouds; but it is a little difficult to believe that all over Mars such clouds as these are prevalent. Moreover, it is to be noticed that these woolpack clouds are morning and forenoon phenomena on our earth; towards noon they either vanish or become modified in shape, and as evening approaches the clouds ordinarily assume a totally different aspect, being extended in long flat sheets, the *stratus* cloud of the meteorologist. Even when rounded clouds are present in the evening sky, they are not the separate small white clouds absolutely essential, as it appears to us, for the theory advanced by Mr. Proctor; but the great heavy cloud is seen

That rises upward always higher,
And onward drags a laboring breast,
And topples round the dreary west
A looming bastion fringed with fire.

According to the views here suggested we have as the principal feature of Martian meteorology the melting of the coating of hoar frost (or of light snow, perhaps) from the ruddy soil of the planet and from the frozen surface of his oceans in the forenoon, and the precipitation of fresh snow or hoar frost when evening is approaching. Throughout the day the air remains tolerably clear, so far as can be judged from the telescopic aspect of the planet, though there is nothing to prevent the occasional accumulation of light cirrus or snow-clouds, especially in the forenoon. We believe, in fact, that the phenomena which have commonly been regarded as due to the precipitation of rain from true nimbus clouds over Martian oceans and continents must be ascribed to the dissipation of cirrus clouds by solar heat.

But we must not fall into the mistake of supposing that because the Martian atmosphere is at so low a pressure that Martian barometers (mercurial) probably stand at only four or five inches, the atmosphere is, therefore, exceedingly shallow. Even on our earth an atmosphere producing this amount of pressure would extend many miles above the sea-level, for as a matter of fact we know that at the height of eight or nine miles, only, the atmospheric pressure is thus reduced, and even

the lowest estimates assign to the atmosphere a height of fifty miles, or roughly some forty miles above the height where the pressure corresponds to five inches of the common barometer. But in the case of Mars the atmospheric pressure diminishes much more slowly with altitude than on our own earth. We have only to climb to a height of three-and-a-half miles to find the pressure reduced to one-half (no matter what the height we start from); at seven miles it is reduced to one-fourth; and so on. But owing to the relatively small attraction of gravity in Mars a height of nine miles must be attained from his sea-level before the atmospheric pressure is reduced to one-half, and a height of eighteen miles before it is reduced to one fourth, and so on. And instead of forty miles (which, as we have seen, is the lowest estimate of our air's height above the level where its pressure is like that of the Martian air), we find a height of fully seventy-five miles as the minimum. We may fairly assume that the Martian atmosphere extends to a height of at least 100 miles from the planet's surface.

In such an atmosphere there is ample scope for air-currents, and it is probable that owing to the tenuity of the air the winds in Mars would have a high velocity. They would not necessarily be violent winds, since the force of wind depends on the quantity of air which is in motion quite as much as on the velocity. So that we need not entertain the theory which was advanced some years since in the *Spectator*, that trees in Mars must be small in consequence of the great violence of Martian hurricanes by which all lofty trees would be destroyed. Even at a velocity of a hundred miles per hour, Martian winds would be less destructive than gales on earth blowing at the moderate rate of twenty miles per hour. But on a globe so small as that of Mars, compared at least with the earth's, swift air-currents would be very effective in carrying off from the central heated regions the moisture-laden air. In this way probably the polar snows of the planet are recruited. The polar regions must, in fact, act the part of veritable condensers, if the circulation of the Martian atmosphere is as brisk as it may well be believed to be. There must in that case be a continual gathering of fresh snows at the poles, and a continual downward motion of the glaciers thus formed,

accompanied necessarily by a very active abrasion and erosion of the planet's polar regions. It seems by no means improbable, moreover, that as Mr. Mattien Williams opines, there may be from time to time great catastrophes in these polar regions, produced by the toppling over or the rapid downward sliding of great glacial masses. For many considerations suggest that there must be an activity in the process of snow-gathering at the Martian poles altogether unlike anything known on our earth. It is noteworthy also that according to reliable observations changes have taken place in the aspect of the Martian snow-caps which imply catastrophes affecting ice-masses of enormous dimensions. Assuredly none of the changes taking place in our own polar regions could be discerned at so great a distance as separates us from Mars, save only the gradual increase and diminution of the extent of the snow-covering as winter or summer is in progress. An ice-mass as large as Spitzbergen or Nova Zembla would not be separately discernible from so great a distance, and therefore the complete destruction of such a mass by collision or downfall would be quite imperceptible at that distance, though it would be an inconceivably stupendous terrestrial catastrophe. But masses of Martian ice, quite readily discernible with good telescopes, have been found to disappear in a few hours, suggesting the most startling conceptions as to the effects which must have been produced on the comparatively small planet where these remarkable events have taken place.

The following observation, for instance, made by the late Professor Mitchel with the fine refractor of the Cincinnati observatory, indicates the occurrence of an event which must have been accompanied by an inconceivable uproar,—

A wrack

As though the heavens and earth would mingle.

"I will record," he says, "a singular phenomenon connected with the snow-zone, which, so far as I know, has not been noticed elsewhere. On the night of July 12th, 1845, the bright polar spot presented an appearance never exhibited at any preceding or succeeding observation. In the very centre of the white surface was a *dark spot*, which retained its position during several hours, and was distinctly seen

by two friends who passed the night with me in the observatory. It was much darker, and better defined than any spot previously or subsequently observed here; and indeed after an examination of more than eighty drawings, I find no notice of a dark spot ever having been seen in the bright snow-zone. *On the following evening no trace of a dark spot was to be seen, and it has never since been visible.*" Does not this observation suggest that a great mass of ice had shipped away, leaving an intervening dark space, which in a few hours was snowed over, the gap remaining thereafter invisible? No other explanation, indeed, seems possible. But how tremendous a catastrophe to be discernible from a station some forty millions of miles away! Granting even that Mitchel used a power of 1,200 (which we find given in *Loomis's Practical Astronomy* as the highest power of the Cincinnati telescope), Mars was still viewed as from a distance of 40,000 miles with the naked eye. Let any one who has observed the aspect of an Alpine region, as seen with the naked eye from a distance of forty miles (that region being known, so that he could estimate the degree by which distance reduced even the most imposing mountain features) consider what would be the effect of removing the point of view to a distance one thousand times greater. Not merely would a mountain-range, but a whole country, be invisible at such a distance. But add to these considerations the fact that the most stupendous mountain catastrophes are reduced apparently to utter insignificance at a distance of a few miles, and are altogether undiscernible at a distance of thirty or forty miles, and we shall be able to understand, though we remain utterly unable to conceive, the vastness of the catastrophe on Mars, the effects of which could be discerned when viewed as by the naked eye from a distance of 40,000 miles. One would imagine that the very frame of the small planet must have been shaken.

It does not appear to us altogether unlikely that the varying accounts which astronomers have given respecting the polar flattening of Mars may find their true explanation in the theory we have been considering. It is certainly remarkable that eminent astronomers, like Sir W. Herschel, Arago, Dawes, Bessel, Hind, Main, and others, should have arrived at

the most conflicting results on an observational matter of such extreme simplicity. We have values of the compression varying from Sir Wm. Herschel's, who made the polar diameter of the planet a full sixteenth less than the equatorial diameter, to Dawes's result, that the planet is not flattened at all. Nay, some observations have even suggested that the planet is elongated at the poles. If great changes of elevation take place at the poles of Mars, owing to the rapid process of accumulation of the Martian snows, these discrepancies would be accounted for.

But whatever opinion we form on details of this sort, it appears tolerably clear that in all its leading features the planet Mars is quite unlike the earth, and unfit to be the abode of creatures resembling those which inhabit our world. Neither

animal nor vegetable forms of life known to us could exist on Mars. To the creatures which thrive in our arctic regions or near the summits of lofty mountains, the torrid zone of Mars would be altogether too bleak and dismal for existence to be possible there. Our hardiest forms of vegetable life would not live a single hour if they could be transplanted to Mars. Life, animal as well as vegetable, there may indeed be on the ruddy planet. Reasoning creatures may exist there as on the earth. But all the conditions of life in Mars, all that tends to the comfort and well being of Martian creatures, must differ so remarkably from what is known on earth, that to reasoning beings on Mars the idea of life on our earth must appear wild and fanciful in the extreme, if not altogether untenable.—*Cornhill Magazine*.

VENI, SANCTE SPIRITUS.

BY DEAN STANLEY.

THE *Veni Sancte Spiritus*, the most beautiful of all Latin hymns, ascribed to Robert the Pious, King of France, in the 11th century, is appointed in the Roman Church for Whitsuntide, and in Luther's "Form of Ordination" (Daniel's "Thesaurus Hymnologicus," ii. 36, v. 69—71). In the accompanying translation the attempt has been made, whilst preserving as far as possible a verbal and rhythmical likeness to the original, to bring out the deeper meaning which belongs to the words when considered as describing the purely spiritual aspect of Christianity.

A. P. S.

Veni, Sancte Spiritus,
Et emitte cœlitus
Lucis tuæ radium.
Veni, Pater pauperum,
Veni, Dator munerum,
Veni, Lumen cordium:

Consolator optime,
Dulcis hospes animæ,
Dulce refrigerium:
In labore requies,
In æstu temperies,
In fletu solatium.

O lux beatissima,
Reple cordis intima
Tuorum fidelium.
Sine tuo numine
Nihil est in homine,
Nihil est innoxium.

Come, Holy Spirit, from above,
And from the realms of light and love
Thine own bright rays impart.
Come, Father of the fatherless,
Come, Giver of all happiness,
Come, Lamp of every heart.

O Thou, of comforters the best,
O Thou, the soul's most welcome guest,
O Thou, our sweet repose,
Our resting place from life's long care,
Our shadow from the world's fierce glare,
Our solace in all woes.

O Light divine, all light excelling,
Fill with Thyself the inmost dwelling
Of souls sincere and lowly:
Without Thy pure divinity,
Nothing in all humanity,
Nothing is strong or holy.

Lava quod est sordidum,
Riga quod est aridum,
Sana quod est saucium:
Flecte quod est rigidum,
Fove quod est languidum,
Rege quod est devium.

Da tuis fidelibus
In te confidentibus
Sacrum septenarium;
Da virtutis meritum,
Da salutis exitum,
Da perenne gaudium.

Wash out each dark and sordid stain—
Water each dry and arid plain,
Raise up the bruised reed.
Enkindle what is cold and chill,
Relax the stiff and stubborn will,
Guide those that guidance need.

Give to the good, who find in Thee
The Spirit's perfect liberty,
Thy sevenfold power and love.
Give virtue strength its crown to win,
Give struggling souls their rest from sin,
Give endless peace above.
—Macmillan's Magazine.

TOO SOON.

BY KATHERINE S. MACQUOID, AUTHOR OF "PATTY."

CHAPTER XLIV.—AGAIN AT VINE COTTAGE.

"If you will put me in a cab, Frank, I will not give you any more trouble."

Bertha had been silent during the journey to London. Frank had insisted on returning with her, so she had consented to remain at River until next morning. To Mrs. Lucas she said that she was wanted at home, and neither the widow nor her daughter ventured to ask any further explanation.

Bertha was glad to get away from Mrs. Lucas—that talk still clung to her memory tenaciously; but she kissed Phoebe warmly at parting, and could hardly keep from crying.

Her cousin placed her in a cab, but he still lingered.

"I don't like letting you go alone, Bertha."

"I like it best." Till now she had kept a cold, offended manner with her cousin. "Good-by, Frank, and thank you. I have been very ungrateful to you, for you have always been kind—always." She raised her hand to check his denial, and tears gathered in her eyes. "I want to tell you how glad I am about your happiness; you will be so happy, Frank, with such a wife as Phoebe; and it was not all from self-will that I wanted to come to town by myself, though you and Mrs. Lucas thought it was. I did not want to take you away from Phoebe, she loves you so dearly. Now, good-by. Tell the man, please, to drive to Vine Cottage."

Frank looked wistful, but he did not

remonstrate. The sudden change in Bertha's manner, and her warm praise of Phoebe, had made him more inclined to take her part.

"Poor child! that engagement was much too short, and she should have married a man of her own age. Helder is too old to make allowance for her. Fellows get crotchety after thirty."

Bertha had written to announce her return, but she had timed it so that her father might not be at home.

A strange maid opened the door; Bertha was glad of this, but she dreaded the first sight of the familiar sitting-room.

"I will go up-stairs, please," she said. She was going up to the second-floor, but the maid threw open the door of the room behind the drawing-room. Aunt Sophy had always slept here, and Bertha shrank back.

"Am I to sleep here?"

"Yes, please, ma'am; the other room has not been got ready."

The maid went away. It seemed to Bertha as if in another moment the door would open and she should see her aunt's sweet, timid face.

She sat down in 'Aunt Sophy's easy-chair and gave way to a fit of bitter crying, not a few tears shed hastily and wiped away. She had been striving against emotion for days past, and now it came in a storm of heartbroken sorrow. This did her good. Ever since her scene with Frank yesterday she had been hardening her heart so as to keep up a dignified composure before Mrs. Lucas.

"Oh, Aunt Sophy, I wish I had gone on living quietly with you; I wish I had never been married."

Sounds on the stairs warned her that her boxes were being brought up. She dried her eyes. She should have to face Jane, who had been left to take care of the house while her father stayed in Italy.

Bertha blushed painfully.

"It must be done sooner or later," she thought. "Of course Jane will think I am separated from my husband." In Italy this idea had not troubled her, here in London it seemed to take a tangible shape.

Jane had evidently been told her young mistress was still an invalid. She curtsied and asked how she was, and suggested that Mrs. Helder should lie down till dinner-time.

Bertha said she was tired and her head ached. She felt that she could not trust herself to speak.

Long before she expected, she heard her father's knock. She hurried over her dressing, and went down-stairs. But when she opened the door of the sitting-room, the sight of her father, standing just as she had so often seen him stand in the midst of the well-known room, with the old familiar surroundings, touched her more keenly than she could bear. She had meant to meet him very quietly; not to give, by word or look, an opportunity for any scene or explanation. And now she stood still one instant, the next she had gone up to her father, had clasped both arms round his neck, and was sobbing on his shoulder.

"Why, my dear—why, Bertha—there, there, you are tired." Mr. Williams spoke very tenderly, and he put her in his own easy-chair.

Bertha could not speak. The flood of memories had completely overpowered her, and her father's unexpected gentleness seemed to remove all need for the restraint she had been keeping up so long. She sat crying till her father got alarmed. He went to the sideboard, poured her out some wine, and told her to drink it, just as if she had been a child.

"I will be back presently," he said.

Bertha tried to quiet herself, but it was not easy. The new maid came in to lay the cloth, and this helped her struggle for composure.

Meantime Mr. Williams was as much troubled as his daughter was.

"I really don't know what to do," he was saying, while he washed his hands. "I cannot make Helder out. When I said that I expected Bertha to-day he looked vexed. I suppose that may have been because she comes to me instead of going to him. He puzzles me. If I felt sure he wished for her return I would urge her to go back, but this is the second time that he has said Bertha must be left to herself—on no account is she to be persuaded to go to him. I suppose he knows best, but I think it would be better for all parties if he were to come here this evening and fetch her home."

He went down-stairs to dinner. Bertha was quiet and grave, but her father saw that she exerted herself to amuse him. He noticed, too, when a ring came at the bell how suddenly she started and flushed. Yes, Mr. Williams was right; if Michael Helder had come that evening to Vine Cottage all this trouble would have been ended.

But next morning she rose up different. The sudden emotion which had so softened her, no longer exercised the same mastery, as her eyes became accustomed to familiar objects.

"A man should always seek a woman," she said; "even supposing we have both been equally wrong, and I deny that I was wrong at all till Michael's silence provoked me; still he ought to come to me at once."

She was sitting opposite her father at the breakfast table.

"Does Michael know I am in London?"

Her father was surprised. He fancied that she would have shrunk from speaking of her husband.

"Yes."

Bertha sat with straining eyes. She could not believe that her husband had not sent her any message.

"I may as well tell you, for it is no secret, that he will have to start in a week or so on a mission to Russia; he will be away a year most likely."

"He did not ask you to tell me this?"

"No; he did not send you any message at all."

Bertha pushed away her plate—she could not swallow.

It was a relief when her father went away, and she could think in peace.

How could Michael treat her in this way—how could he be so very cruel?

"I was happy enough here till he came and took me away; he has spoiled my life." She said this passionately, and then she checked herself.

The day wore on slowly. For the first time since her aunt's death, Bertha seemed to be shut up alone with her thoughts. That night at Dover beside the moaning sea she had got a clearer notion of herself than had ever before come to her; but Frank's visit, and the indignation aroused by Michael's letter to her father, had hardened her again into a belief in her husband's utter indifference. She stayed indoors; she so shrank from the idea of meeting any former acquaintance, but the confinement was intolerable.

The garden was full of memories of Michael. In the brief time of her engagement they had always sat together on the bench beneath the ash tree. Long before she left them, the rooms at Vine Cottage had grown distasteful on account of their monotony, and after a restless survey had shown her that there was no change in the arrangement, she sat down listlessly, unable to shake off the thoughts which were so intolerable.

She tried to look back—to see herself again the wild, saucy girl, who had always, even when she was most tiresome, felt conscious of her power to provoke laughter—and it seemed impossible that she could so soon have grown into her present dullness.

"And yet I was never merry—not sunshiny like Phoebe Lucas, I mean. She never seems to have a care or a worry, and yet—" She paused. Frank had told her of Mrs. Lucas's troubles, and how very slender her income now was. "No; a fortnight ago I should have said that Phoebe is cold or indifferent, but I can't say that now." As Phoebe's character claimed her respect, her own faults deepened in comparison, and this was irksome. "I suppose"—a new reason suggested itself—"she has so many other people to think of that she has no time to worry about herself. Does she never think about herself, I wonder? she is always talking of Frank or her mother or some of the cottage people."

A slight feeling of uneasiness came. "What do I think about?"

There was a novelty in the question that

made it impressive. What was the chief subject of her thoughts? Till she knew Michael her life had been spent in dreams of the future; then for a time Michael had occupied every moment; then after her marriage there had been no thinking-time, she had been always with Michael. She paused again here. That happy time seemed far off now, and what since then?—hardly one pleasant remembrance. "What do I think about now?" Again her conscience was uneasy, and she felt disquieted.

"Well, if I do think much about myself and my troubles now, I cannot help it; no one helps me or sympathises with me; besides, I cannot seek sympathy, I cannot speak against my husband however unkindly he treats me. Oh! how miserable I am. Why did he marry me if he meant to cast me off like this?"

She did not cry, she was too full of feverish suspense. She had been looking at her watch constantly for the last hour, and the time had arrived when Michael might reach Brompton after leaving the Museum. Her father had said he should be detained, so she should be alone for hours yet.

She went to the window and placed herself so that she could see without being seen. Every cab that passed, every tall figure she saw approaching, made her heart beat quicker; but the hours passed by till evening grew into night; the anticipation that at one time had grown into a certainty faded, and left her heart with a chill of fear that it had not felt before. Bertha had resolved that her husband should seek her, and till now she had not realised how complete had been her trust that all would be as she willed it to be.

CHAPTER XLV.—BERTHA'S DESK.

MR. WILLIAMS had been right when he said Michael Helder seemed to think he was to blame about his daughter.

Mr. Helder thought it scarcely possible that Bertha would propose to return to Vine Cottage unless her father had encouraged her to do it.

A week has gone by since his talk with Mr. Williams. Michael has had more than one opportunity of seeing him again, but he has purposely avoided a meeting.

His departure for St. Petersburg is fixed for the day after to-morrow, and he sits now alone in the cosy sitting-room in St.

John Street. His writing desk is on the table, but he has closed it, his writing is over for this evening. He looks very worn and sad. He takes a letter once more from its envelope, reads it through, then replaces it, and fastens the seal.

He sighs, and his look of sadness deepens.

"Poor child, I do not think there is anything in it to vex her; she will at least see how completely she occupies my thoughts. I have not made any profession of affection. Little as I understand Bertha"—a look of bitterness crosses his face—"I thought I did once, and I have been punished for my conceit—but even from the little I know, I am sure she is generous, and although she is so indifferent she might be moved by gratitude or pity to come back to me if I made an appeal to her feelings." He pauses; in this pain of thought it seems as if it might have been better to bring her home at all risks. "No, it is best as it is; if she loved me she would have made some effort this week, she would have written—Bertha does not love me, and I could not go on loving unless I was loved again—far better to go away with the remembrance I have of her than to have all my worst fears stamped into reality."

He puts his left hand over his eyes; he is ashamed of his own weakness—ashamed to own to himself the bitter disappointment this week had brought.

"I was a fool not to believe Rachel," he says, sternly; but still he had disbelieved.

He had been deeply wounded to learn from Miss Fraser that his wife avoided even the mention of his name. Till then he had tried to believe that Bertha was too feeble to write, and he had longed to go to her; but though he saw that Rachel had softened towards Bertha, he saw also that she believed his wife to be completely estranged from him, and his pride told him to keep aloof.

It was not only pride. Memory is very fertile where there is any wound to the affections, and Michael Helder remembered how soon Bertha had grown cold and reserved.

"No doubt she was too young," he says; "she married before she understood her own feelings, and after novelty had worn off, she was unhappy, and she took the first opportunity of escape.

Well, I have tried to make her happy her own way. I shall not let her receive this"—he lays his hand on the letter—"till I am on my way, this will put me out of the reach of temptation. I am not acting on any mere sentiment. She has given too unmistakable proof that she dislikes me. I could not let her sacrifice herself to me from any exalted notion of self-devotion, which certainly could never satisfy me."

Once more he takes up a pen, and addresses the letter to his wife.

"There—it is over, and I am glad; my arm aches terribly to-night. Now I will try to think only of my journey. I shall be glad when I am fairly off."

He smiles. In his heart he thinks Bertha will be sorry when she has read his letter. In it he has abstained from all reproach. He simply says that he has been appointed suddenly on a mission to St. Petersburg, which will probably be useful to him in many ways. He may be away a year or longer, in the meantime he has arranged everything for her. She can live either in St. John Street, or at Vine Cottage. "We shall both have time to think," the letter ends, "and if when the time comes for my return you still have the same feelings, then we will come to some permanent arrangement which will leave you free, and yet remove as far as possible all scandal and annoyance. It will not be difficult for me to procure a permanent continental post."

He looks pale and exhausted, it has been so difficult to restrain all expression of feeling; for though he pities Bertha, he is chafed and angry. It is not only because he believes she would sacrifice herself to him that he has kept silence as to his love for her. It seems to him that a husband who can sue to a wife when she has behaved as Bertha has behaved, would lose all self-respect, and also all dignity in the eyes of his wife. He still loves Bertha very dearly, but he despises himself for his love.

"It was founded on a mistake. I believed in her eyes," he says, "and took the rest on trust."

He said he would think only of his journey, but his mind is too full of Bertha for more than a passing interruption.

"I must lock up all that belongs to her and send her the key."

He feels a sort of hungry eagerness to do this himself instead of trusting the duty

to Miss Fraser, and the next minute he is scornful at his own weakness.

"I believe I am still fool enough to think Bertha would care which of us did it!"

He looks round the room. On the other side of the fireplace is a dwarf book-case which he had had made on purpose to hold Bertha's favorite authors; in front of this is a high-backed cane chair of carved ebony, and on the small black table in front of this is Bertha's writing-desk.

He takes the books from the shelves and places them on his own table, then he lifts up the writing-desk. It is open. An involuntary rebuke comes to his lips:—

"Careless child!" and then he checks himself, he knows Bertha had a trick of keeping the key inside her desk. He lifts up the lid; a flush rises in his cheek, it seems as if he is prying into her secrets. Several loose sheets of manuscript flutter out and on to the floor. As he picks these up and holds them in his hand, he sees almost without looking that they are verses. He hesitates a moment, and then he smiles,—

"After all, I am her husband." He sits down and begins to read the verses.

CHAPTER XLV.—AN OLD WARDROBE.

MR. WILLIAMS sat looking at his daughter. Probably the wrench which the journey to Italy had brought into his daily life, severing him for a time from the habit of study which had become more to him than any natural claim of kindred, had drawn his affections to the surface again; he had not had time since his return to yield himself entirely to the absorbing interest of his researches, and Bertha's return home, and the emotion she had shown, had effaced the impression of her wilfulness at Dover. He felt disturbed and expectant; the half-mystery that hung over the estrangement of the husband and wife added a certain curiosity to anxiety.

"If either of them would speak out I should know better whose side to take; perhaps they are both wrong." He gave a perplexed look across the breakfast table. Bertha was looking beyond him into the next room; she was very pale against her deep mourning dress, and it seemed to her father that her eyes were larger and more full of intense expression than ever. He sat watching her for some minutes. She

did not move; she was more languid even than she had been during her illness.

"It was a mistake not to tell her the whole truth. If she had heard of that accident, she would have been roused out of herself. I believe now that if Michael came over here and said good-by, they would both be much happier; better still if they were to make it up and go away to Russia together. I cannot see any good in his silence and in this long separation. So far I have blamed Bertha, she has behaved in a silly, childish way; but now I really think she is hardly dealt by."

The whole affair was to him incomprehensible, and it made him silent and unhappy; he had been so absorbed at first by his grief for Aunt Sophy, and then in anxiety for Bertha during her illness, that the estrangement had gone on widening for some time before he had noticed it. He wished now to ask Bertha how it had begun.

He looked at her pale, sad face, and his words were checked on his lips.

"What good will it do? I shall only bring back all the discomfort we had at Dover, and I cannot urge her now to go to her husband. The poor child is so sensitive that she will think I am tired of her, and—and"—a flush came in Mr. Williams's face—"Helder's manner was so very cold and forced when he told me his journey was decided, that I am not at all sure he cares to see her again; besides, that was a week ago—he may have started by this time. I wish I had insisted on his speaking out—I might have written."

He sighed, and as he looked at Bertha, a new and startling thought came to him. What was she to do with herself in this long period? Life at Vine Cottage must be so changed for her without her aunt!

"Bertha, my dear"—he spoke with so much hesitation that Bertha gathered at once some announcement was coming—"I am afraid you must be very dull all day alone; what do you do to amuse yourself?"

"I"—Bertha laughed—"oh, I do nothing. I have got into idle ways in Italy; besides, there really is nothing to do." She gave a weary sigh.

"Can I do anything in your study?" She looked up as if she thought that was the meaning of his question; but her father felt that all the old eagerness had gone out of her voice. At one time she

delighted in any work among his books and papers.

"Well, no, thank you; but I think as you have a long spell of this solitude to look forward to, you know"—he looked cheerfully at her—"if I were you I should take up my studies again."

"I feel too stupid."

Her words sounded fretful. Really, she had to go to the window to hide the tears that were brimming over.

There was no hope, then!

Her father would not deceive her, she was sure of that; there had been a dull certainty in his words which beat upon her heart and made her realise the truth. She was parted then from Michael; possibly he was already far out of reach.

"There is one thing you can do for me"—Mr. Williams got up and folded his newspaper, a signal that he was departing—"there is your Aunt Sophy's wardrobe, and there are many little things which belonged to her. I shall be so very glad if you will look through all these things, keep anything you wish and give the rest away. Except Frank, there is no one who has any claim or interest, and I think the sooner it is done the better."

He put a bunch of keys on the table, and went away before Bertha could make up her mind to protest. Decision and arrangement were beyond her, especially in this unnerved, listless mood.

"I can look through the things and make a list, but I certainly shall not decide on what is to be done with them."

She could not make up her mind to begin, but at last she went up-stairs with the bunch of keys. They belonged to an old-fashioned wardrobe with sliding shelves above shut in by doors and drawers below. She opened the drawers first, and looked dully through her aunt's linen; it seemed to her there was less power of association in this monotonous white, which might have belonged to any one. At last she unlocked the doors above.

There were not many dresses on the shelves, and some of them had little interest for Bertha. One or two had only been put on for state occasions, to dine at the Rectory, or else worn when there had been company at Vine Cottage.

A vivid memory came to Bertha that she had always been excited and unreal on these occasions, and had, in some way or other, always contradicted her aunt.

She put the dresses back on the shelf with a sharp sigh, there was no pleasant link to the past in them. On the shelf below, a dress lay shrouded in tissue-paper wrappings. Bertha lifted this out, but she made no attempt to open it; she had helped to choose that dress, and she knew well enough that Aunt Sophy had only worn it once, and then had put it away, thinking it too young and gay for anything but another wedding.

"She would have worn it at Frank's if she had lived."

Frank's wedding! Why had she called up this vision just when her new occupation had set her free for a while from the tyranny of her sorrow?

Yes, of course, Frank's wedding would come, and she should be obliged to witness Frank's happiness, and to see how happy Phoebe made him.

"But Frank will make Phoebe happy too," she said, impetuously; "he is satisfied with her as she is; he will not turn her over to a Miss Fraser to be improved. Oh! if Michael had only been patient with me! He need not have been afraid that I was satisfied with myself, I never could be: why it would have been a delight to improve myself to please him; but to be told to copy Miss Fraser—I don't believe one woman in a thousand would even have borne it as I did."

Bertha stopped; her face had grown hot and flushed; she became aware, in that startling way in which such a fact is perceived rather than realised, that she had changed. She stood before the open press, stayed in the midst of her work, sightless to all but the change she saw in her mind. Again she blushed vividly. She had just asserted to herself that but for Michael's setting up of Rachel Fraser she would have tried to improve in household skill, and, instead of this, what had really happened? She had so scorned the idea of housewifery, that her first married sorrow had been that her husband could even desire she should lower her intellect to such a degrading study. She remembered that she had poured out her misery in verses, and had felt a secret contempt, because Michael thought the ordering a dinner worth consideration.

"It was perhaps foolish to write the verses, but still I was higher-minded then," she said, sadly; "I have deteriorated. I believe illness always makes people frivo-

lous and commonplace; my father was right in thinking study would be good for me."

She did not feel as happy even as she had felt five minutes ago; the chastening memory of Aunt Sophy had dimmed. She felt more like the unsubdued Bertha, who had so utterly refused to be guided by Rachel Fraser.

She raised the carefully-wrapped parcel from the sofa to replace it on the shelf, and then she noticed that another dress still lay there which she had not yet examined; it was a black silk, and it lay quite at the back of the shelf.

Bertha set down the parcel again and took out the gown carelessly enough. She had forgotten what she was doing in the proud feeling she had summoned.

The gown unfolded itself and hung down in her loose grasp, and Bertha roused suddenly from acting out the past.

Here was a memory that chained her by every feeling to her dead aunt. This was the gown Aunt Sophy had been wearing daily. She had worn it the last time they had been together, on the eve of Bertha's wedding-day.

How the thick clouds lifted now—the very scene was changed!

Bertha saw herself in the back parlor sitting listlessly in the arm-chair, longing for the new life which was to be so cloudless; even the irritation which the gravity of the gentle face had created came back.

She saw Aunt Sophy's hesitating effort to speak, and then came the words that she had spoken.

Aunt Sophy had said that Bertha must "trust Michael as much as she loved him, or her happiness would be wrecked."

No vision from a land of spirits could have struck a more vivid chill. Bertha stood shivering white as death.

"Trust!" Her brain seemed to have lost power, or she had lost the power to convince it. Her creed of life had been that love was omnipotent, that two people who loved must make one another happy, and what had her experience proved?

"But if love were mutual—equal—it would prove sufficient."

Love—what is love? She glances at the gown she still holds, and then she lets it fall. What is any love she has ever shown compared to the patient, unrewarded love that she scarcely guessed at till it was no longer here on earth? If her love

for Michael had been true love, it would have gone on in the same unexacting patience and self-denial that Aunt Sophy's did. Which left off loving first, she or Michael?

"I never left off, I love still."

From where Bertha knows not, it only seems to come from the empty air; but distinctly to her heart, as if a human voice uttered it, comes the question,—

"How do you love?"

She looks round with wild affrighted eyes, but she has no power to move—no power either to shirk the stern inquiry which pierces through all her folly and her pride,—

How have you shown your love?

Again the image of her husband rises before Bertha. She sees the wistful look with which he left her, she hears his tender, self-accusing words; how often before that his eyes had sought the reason of the coldness she tried so hard to keep up; how wicked, how mad, her sullenness was!

And then in one great rush of inner vision—a mercy that is sometimes granted—Bertha sees herself; she sees the erring child in its life of daily struggle, and then the wilful girl, thinking herself so uncomprehended, so quick to take offence at others, so slow to realise the forbearance shown by others to herself.

She sinks down on her knees, and then as the blackness reveals itself, as she sees the leprosy of Self that covers her whole soul, she crouches down on the ground and hides her eyes from the light.

Words long forgotten, holy words she has read and heard read, strike on her heart as if they would cleave a passage through the pride that has so long cased it in self-deceit.

Bertha has gone on all her life telling herself she is not conceited. She knows she is high-spirited, and eccentric, and faulty; but she has said this without alarm or horror. She has had—if she had gone to the root of this matter she would have known that she has had a secret satisfaction that she has a high spirit, and is in most ways unlike other people. Now, terror and loathing are too strong for tears, she crouches down lower and lower, she longs to escape from herself. It is not only her father and her aunt and Michael she has sinned against; the dread question which still strikes on her heart, and will be answered if she does not harden herself

against it, is searching for the deep root of her sin.

It asks her as she lies cowering and trembling what she has been living for; and Bertha knows the answer, though she cannot speak it: she has neither lived for God or man, only for herself.

Self! She sees the idol now, no longer pranked out in the garb her fancy made for its deformity—in all the hideousness of reality she sees herself. It may be that were such a revelation lasting, frail human nature could not endure existence; but, by God's mercy, where it has once been granted it is one of the truest helps to amendment.

How long she lay on the ground in her abasement Bertha never knew. When she rose up, she knelt down reverently at the little table where Aunt Sophy had so often knelt.

"Oh God, have mercy," she murmured; "have I gone on all these years taking love as my right and never showing any? All might suffer through me, but I alone was to be spared all!"

Tears came at last, bitter contrite tears, for wrongs too late now to be atoned for; and with these, for the first time in her life, Bertha poured out heartfelt thanks and praise to the Love which had borne with her till it had at last won her to feel its presence in her soul.

CHAPTER XLVI.—RETURN.

MR. WILLIAMS was silent and preoccupied when he came in, and this was a relief to Bertha.

As soon as dinner was over she went up-stairs and put on her walking-dress.

When she came down her father was sitting over the fire.

"Can you tell me"—the strange sound in her voice made him turn round quickly—"if Michael is still in London?"

"Well, yes; I was going to tell you he starts in a day or two, but—" He looked at her and hesitated.

Bertha shook so that she leaned against the door for support.

"May a cab be sent for?" she said; and then she went across the room and knelt down beside her father.

"Father, I am going to Michael to see if he will forgive me. I do not know that I have been worse to him than I always was to you, and—and her"—she stopped

to check her tears—"but you have forgiven, you always forgave, so perhaps he will."

"My darling"—her father kissed her and placed her in a chair—"my poor dear child, you are doing right now; don't excite and distress yourself; pray don't, my dear, dear child"—for she had given way to a fit of bitter sobbing—"there, there, you will be quite ill; think of the servants, dear; you shall go directly, I will take you home myself."

In her heart Bertha would have liked best to go alone, but she only sobbed out "Thank you."

But her father did not disturb her, he sat silently beside her in the cab and he did not speak again to her till just before they reached the house, then he touched her arm.

"There is something I think you ought to know now, Bertha—in my opinion you ought to have heard of it when it first occurred. I don't know if you ever made much inquiry about your husband's illness; on his way from the station to Mr. Farquharson's house he was thrown out of a dog-cart on to a rough stony road—his arm was broken, and he was severely bruised and shaken; the fracture was so serious that at first it was thought he would not regain the use of his arm."

"Oh, why was I not told?" and then Bertha checked herself. What right had she to murmur now?

"Michael would not have you told at first, he was so afraid of alarming you. He could not send for you, and he thought he should come home and tell you himself, but the doctors would not allow him to travel. Then he heard of your journey, and he thought it would distress you to learn how ill he had been by poor Sophy's sick-bed; then came your illness; and afterwards, I believe, your silence wounded him, and he was unwilling to give you any motive for returning to him beyond that of duty and affection. I do not say this to hurt you, my dear"—she had hidden her face in her hands—"but I am sure this knowledge of your husband's consideration will not be lost upon you now. Good-by, my dear. God bless you."

He handed her out of the cab, waited till the street-door had closed on her, and then drove away.

The maid stood staring at her mistress

when she had said Mr. Helder was at home.

"In the sitting-room, ma'am, if you please," and she went on to open the door.

"Stop"—Bertha had been too bewildered to plan any mode of action beforehand, "you can go, I want to take Mr. Helder by surprise."

She waited till the maid departed; but the girl was not willing to go, the whole proceeding seemed to her conventional mind quite "out of regular ways."

Bertha opened the door timidly, and then closed it behind her. Till now she had been too much over-wrought fully to realise that which she proposed to do. She had realised that she was going home to ask Michael to forgive her, and had felt eager to kneel to him, and entreat him to take her back to his love.

But she had not realised the effect of his presence on herself, and now that she saw him she had no power to move. Michael sat at the table. His head had been resting on his hand, but he raised it at her entrance. The shade on the lamp beside him concentrated the light on his face, and Bertha felt that he could not make her out as she stood in the far-off darkness.

How ill and worn he looked, and how old his face had grown. She saw in a glance that a sling hung round his neck, although his arm had been withdrawn from it, and she saw the lines that suffering had stamped on his face.

She longs to move—to speak, but she cannot; and now, as she sees him screening his eyes with one hand, and the eagerness that suddenly brightens them, she trembles and stands with bent head longing to escape.

But Michael gives her no time. He is beside her—he kisses her, and holds her clasped to his heart. As she feels the strong tumultuous throbbing there, Bertha breaks the spell that has held her.

She slips away from Michael and tries to kneel, but her husband sees the movement, and he holds her fast.

"My darling!"—how hungrily she lis-

tens to the loved voice—"is it really you?" and then there is a pause in his words. Bertha cannot speak. It seems to her she is in heaven as she stands there folded in her husband's arms, and resting her head on his breast.

Presently they sit down together, but Michael seems afraid to loose his hold of her. He cannot yet believe he has his wife again.

At last words come to Bertha.

"How good you are!" she murmurs, "when I am so wicked. If you knew how wicked, you would never, never love me again!" And then her arms creep up round his neck, and she cries quietly.

"I don't know about that," he says, gravely—so gravely that she trembles again. She thinks that after all he only pities her, and she—oh! how she loves him now. "We have both been to blame, perhaps, but you have much to forgive me. Till I read these to-night"—he pointed to some papers on the table—"they are your verses, my child—I did not know all your heart. I did not know how little I had understood or recognised your gifts, nor how much my outward reserve had made you suffer; and you felt my dulness, and were too shy to trust me fully with your confidence. Do you forgive my blindness now?"

"Oh, Michael—" But she only begins; he does not let her finish.

"There shall not be any more said. You are here, and I am happy, my darling, if I can only make you happy too."

Bertha looks up—her old sauciness sparkles in her eyes.

"That you certainly cannot," she says. "I am much too happy for even you to make me any happier." Then a tenderness comes into her sweet face, which to Michael seems a new revelation of her beauty. It is a look he has never seen in his wife. "Do you know that I am going to try and make *you* happy now? My own husband," she says, "you need not think about my happiness."

THE END.

DANIEL O'CONNELL.

A FEW years ago the late Sir George Cornewell Lewis suggested to a man eminently fitted for the task, that he should write the history of Ireland. The attempts

hitherto made, had been, in the judgment of that calm critic, at once partial and superficial, and it seemed that a great subject, full of instruction for the people of

both countries, lay waiting for one fit to cope with it—who should unite patient research and judicial calmness of judgment with a moral sense intolerant of wrong, and should know how to denounce evil deeds yet make due allowance for the errors and temptations of the wrong-doer. His friend—wisely, as I believe—resisted the suggestion. Too well acquainted with the story of “English misrule and Irish misdeeds,” he knew that it could not be told, however truly, without reviving on both sides feelings that every real patriot must long to set to rest. “It is too soon,” he answered; “that history may be written a hundred years later, not now.”

It has seemed otherwise to a popular writer, who has devoted brilliant literary faculties and fervent enthusiasm to the service of historical paradox. Having hitherto practised his skill by seeking to reverse the deliberate judgment of mankind upon personages and events of a rather remote period, and little related to the feelings and passions of our own generation, he has now chosen the melancholy story of the connection between England and Ireland for the display of his abilities and his zeal. Amid the hearty cheers of Orangemen and Fenians, he has gone back through the blood-stained annals of Ireland, and given new freshness to the half-forgotten memories of oppression and crime.

On the manner in which he has achieved his purpose a judgment has been pronounced in this magazine in which I fully concur; and the only remark that I would desire to add is, that even if the performance were quite other than it is—if the moral standard were acceptable, if the facts were viewed with judicial impartiality, and the conclusions enounced in a tone free from passion and bitterness—the attempt was nevertheless unfortunate, and the moment especially ill-chosen. During the last half-century principles quite opposite to those professed by the author have definitively prevailed—laws declared iniquitous by the general consent of all civilised countries have been repealed—the traditional grievances of Ireland have been redressed, and but one difficult question still remains for solution. Men bred up to a hereditary hatred for the governing country are not yet completely reconciled; but surely this is not the moment to insist on reviving their recollections of a hideous

past, and reckoning up the items of the infernal balance-sheet of oppression and crime.

Every man who knows Ireland well and who holds that a permanent reconciliation is the supreme object to which patriotism and statesmanship on either side, of the Channel should constantly tend, agrees in declaring that the one thing needful at this moment is peace. The soil of Ireland is no longer favorable to the growth of disaffection—nothing in the daily life of the Irishman of any class or any sect now supplies provocation. The memory of past wrongs alone nourishes feelings that will gradually disappear when no longer excited. If that might be, the greatest boon that we could bestow on both countries would be a draught of Lethe deep enough to efface the memory of all that has ever passed between them. But if we must turn our eyes backwards, let us avert them from the dark and dreary times to which none of us who claim kinship with the English or the Irish of the seventeenth and eighteenth centuries can refer without shame and humiliation, and take refuge in that later period when first the ideas of right and justice began to influence the relations between the two countries.

It so happened that this period coincided with the appearance of a remarkable man—take him all in all, the most remarkable man that Ireland has produced—by whose genius and energy the course of events was mainly shaped. From a brief retrospect of the career of Daniel O'Connell—from the consideration of what his work was and what the results of his work have been—some light may be thrown on recent history, and, perchance, some guidance be formed for future conduct.

It is the less necessary to speak in detail of the events of O'Connell's political life, as attention has lately been recalled to them by two works, very different in their character, although both are eulogistic in tone.* The first of these includes a vigorous sketch of O'Connell's political career. The author has brought to his task a singularly just and candid spirit; he has evidently availed himself of all the

* “The Leaders of Public Opinion in Ireland,” by W. E. H. Lecky, M.A. Longmans, 1871.—“The Liberator, his Life and Times,” by M. F. Cusack. Longmans, 1872.

published materials now forthcoming, but he does not appear to have had access to the personal recollections of those who bore a part in the transactions of the period. Taking it for what it professes to be—a sketch of the life and work of Ireland's greatest political leader—there would remain little to be added by a subsequent writer if the author had not omitted to give due prominence to the greatest evil under which Ireland now suffers, an evil for whose growth and extension the great Agitator and successive Liberal Governments are jointly responsible.

The second work, a bulky volume, gorgeous in green and gold uniform, is written by a religious lady, the inmate of a monastic house at Kenmare, in Kerry, within a few miles of the home of the "Liberator," as he is still called in his native county. There is no disguise as to the sentiments of the writer. She has undertaken the work in the spirit of hero-worship. Every scrap of information as to the early life of O'Connell is scrupulously recorded; ample, if not well-arranged, details are given of his work during the struggle for Emancipation; but of the period which has by far greater importance in connection with the Ireland of to-day, of his political course after he entered the House of Commons, the authoress appears to be but slightly informed. The only positive contribution to our knowledge of that time is contained in the correspondence of O'Connell with the famous Dr. McHale, Archbishop of Tuam, which the latter has placed in the hands of the authoress. This tends to confirm the belief that O'Connell was personally disposed to support a moderate and practical policy, but was urged to the Repeal agitation by finding that to be the only topic on which he could hope to unite the mass of the popular party.

In the old dispute whether the course of events is mainly determined by the character of individual men, or mainly fashioned by events, or what are called circumstances, arguments may be drawn by either party from the story of O'Connell's life. If it be true that the history of Ireland for the last half-century has been very much the result of his action, it is also true that if he had appeared half a century earlier he must have utterly failed to achieve anything worthy of record. Some will conclude that here, as elsewhere in the course of history, two factors—the man and the

opportunity—are both needed to produce great events.

To understand how that opportunity arose, it is necessary to cast back a brief glance on the condition of Ireland during the ninety years that followed the final victory over the Irish national resistance to English power. It is no pleasant prospect for an Englishman, nor for any man who loves England; but it must be faced by one who would understand the Ireland of O'Connell, or the Ireland of the present day. Look back, then, though but for a few moments.

For three generations Ireland lay in your hands as clay in the hands of the potter. Crushed under the penal laws, the great majority of the nation had forgotten the dream of resistance, and well nigh lost the desire for those rights of citizenship that you withheld. For all practical purposes you had to deal only with the men of your own stock and your own religion, whom you had planted in the country as a garrison, who owed to English authority, not only possessions and privileges, but the still dearer right of lording it over a prostrate people. At the end of ninety years what had you achieved? By a marvellous union of impolicy and injustice you had brought the Protestant ascendancy of Ireland to unite in almost unanimous resistance to your authority. You at first avoided actual conflict by conceding legislative independence at a moment of national difficulty; but you had let disaffection take such root among the Protestants of the North that, a few years later, you had to suppress a rebellious outbreak of which your own natural allies were the instigators and the leaders.

It was not until the mismanagement of Ireland had roused the spirit of resistance among the Protestants that the Catholics began to recover from their long lethargy, and to feel the degradation to which they had been reduced. For nearly a century the only career for any man of spirit and energy among them had been away from home and country—and the story of the Irish Brigade and the military history of Austria and Spain shows that such were not wanting. Lest any chance for deep-rooted disaffection should be missed, the law made it a capital felony to open a Papist school. In the comparatively few old families that had retained some part of their estates, the sons were sent to the

Continent for education, and there received their earliest lessons of attachment to the British constitution. Instead of bewailing the incurable disloyalty of the Irish Catholics, one is tempted to think meanly of men so wronged who could abstain from any opportunity for desperate resistance. In truth their quiescence during the last century* was chiefly due to the influence of the clergy. This may have been partly guided by a just estimate of the chances of success in any renewed struggle with English power; but it was probably directed to some extent by the altered policy of the Church of Rome, which had laid aside the combative maxims of the sixteenth and seventeenth centuries, and leaned rather to the support of all established Governments.

The first relaxation of the penal laws in 1793, by giving the electoral vote to the Catholics, prepared the way for the great cycle of events that within forty years have utterly changed the condition and prospects of Ireland. No one at the time imagined that the concession was of much political importance. The Irish peers and gentry who trafficked in political influence made haste to multiply the number of voters who were to be driven to the hustings when required, and blindly to support the landlord's nominee. A thinker of ordinary foresight might have foretold that the day would come when the ascendancy of a small minority, and the exclusion of the great mass of the people from equal rights and advantages, would be felt to be intolerable injustice, and that the right to vote could not in the long run be turned against the very men to whom it was conceded; but he might reasonably have allowed thirty, forty, or fifty years for a class so prostrate as then were the Irish Catholics to assume the attitude of serious resistance. And so it would have been but for a young unknown man, just eighteen years old when the Act was passed, who was bold enough to conceive the design, vigorous and skilful enough to effect it, of raising up the down-trodden masses of his countrymen, and using the votes of serfs to effect their own emancipation. It is hard to conceive

a less hopeful undertaking. The son of a younger son of a family of second-rate importance in the remotest part of the island, O'Connell had no external advantages; but Nature had gifted him with exceptional qualifications. The true way to arouse by speech the feelings of the people is to feel with them; the true way to direct them is to aim at the same objects, but to know better than they how these are to be attained. For the office of arousing and guiding the energies of a nation never yet was a leader—call him patriot or call him demagogue—so fitted as was Daniel O'Connell. Whatever qualities or defects you find in the genuine Irish peasant, these you find heightened and intensified in the great Agitator, with the addition of one all-important element, scarcely ever to be found in the same type of character—restless, persevering, indomitable energy. If, as we must own, he failed to attain the loftiest heights of patriotism, if he wanted the elevation of soul that carries a man to noble ends by none but noble means, it is clear that were he other than he was he must have missed the great career that was before him. Of the many men who have taken part in the political history of Ireland, not to speak of the mere sycophants of popular favor, some have approached O'Connell in intellectual gifts, some have perhaps surpassed him in moral elevation; but to none other has it been given, as it was to him, to arouse, guide, and control with absolute sway the mass of his countrymen. Heedless of the present, but gladly dwelling on the prospect of a brighter future, and still more attached to dim traditions of an illustrious past, loving more to be dazzled than to be convinced, so prone to exaggeration that his ordinary speech is all compacted of superlatives, passionately attached to a creed that unites for him the strongest feelings of religion and patriotism, possessing all the virtues that grace youth, but wanting those that build up manhood, the Irish peasant has hearkened in succession to many political leaders, but in no voice save that of O'Connell has he found the echo to all his own unspoken feelings and aspirations.

The chief incidents of the long struggle for Catholic Emancipation have been accurately noted by Mr. Lecky, but it might be wished that he had given more prominence to the great lesson that English-

* The very partial rising of 1798 affords but an apparent exception. The great majority of the Roman Catholic clergy and gentry were directly opposed to the movement, which in consequence never attained serious dimensions.

men should draw from the history of that time—deep distrust of their own prejudices.

If honor be due to the men of the Whig party to whom the wisdom of Burke and the generous ardor of Fox had instilled the principles of civil and religious liberty, who for nearly a generation resisted the attractions of place and power, rather than postpone the application of those principles—if we must acknowledge the practical sagacity of others, such as Canning and his followers, tolerant of injustice, but not blind to the impolicy of prolonged resistance—what shall be said of the terrible power of prejudice in a country where wisdom and generosity and practical shrewdness are all helpless against fixed unreasoning prepossessions! Nor was that the worst. A nation of Eldons would surely end in some great catastrophe; but posterity might keep some respect for men who had risked all for a doctrine, however absurd. But the men of the last generation did not truly believe in "No Popery." They were not, indeed, to be disturbed by the voices of such men as Grey, and Brougham, and Plunket, and Grattan, and Canning, and Russell; but when it came to the point of danger, when it was seen that the refusal of justice to the Irish Catholics would probably entail the cost and labor and discredit of a suppressed insurrection, they discovered that the prejudices they had decorated with the title of conscientious objections could not bear to be examined in broad daylight. Once more was taught to Ireland that disastrous lesson, destined to be often repeated, that "England's difficulty is Ireland's opportunity,"—that concessions are to be obtained not from the sense of reason and justice, not by direct action on a healthy public opinion, but from the apprehension of danger or inconvenience in refusing them. It might be pleasant to believe that Englishmen of one section or class were alone responsible for the limitless mischief caused by the delay of Catholic Emancipation. Candor forbids such an assertion. The House of Lords has many sins to answer for, but it is impossible to agree with a recent writer in adding this to that special account. It was not until four-and-twenty years after the Legislative Union, during which the question was almost constantly discussed, that a Bill for Catholic Emancipation passed through the House of Commons, and was thrown out

by the House of Lords. But in the close divisions upon the resolutions moved by Sir Francis Burdett in 1825, and the subsequent stages of the Bill founded on them, a majority of English members of the Lower House voted against Emancipation, and there is no reason to suppose that at that time a Reformed English Parliament would have shown a more statesmanlike spirit.

Posterity will probably pronounce that up to the passing of the Emancipation Act the career of O'Connell was almost unimpeachable. Refined taste and a nice sense of justice are shocked by the violence of invective in which he often indulged, but, as Mr. Lecky has well observed, the Catholics needed above all things courage and spirit, and nothing served more to raise their tone than to see one of their own class assail in unmeasured language the most conspicuous persons in the State; and in Ireland, where words have not the solemn importance that they possess here, too much stress must not be laid on mere vehemence of language. It was an evil example for the people of Ireland that their great leader should be constantly engaged in new devices for evading the law, in order to keep up that organized agitation of which he was the inventor; but no one now will deny that his object was legal and constitutional, and the responsibility for the harm of breaking or evading laws essentially unjust rests mainly upon those who enact and maintain them.

It is far more difficult to form a just conclusion as to the latter part of O'Connell's career, from the day when he triumphantly entered the House of Commons, the elect of the Irish nation, to the dark period of his eclipse, when, broken in health and spirit, weighed down by the load of misery that had fallen on his country, he set forth on the pilgrimage which he was not destined to accomplish.

In the course of those eventful seventeen years, the political course of O'Connell passed through three phases, very different in their outward aspect and in their effects on the condition of Ireland.

1. From the passage of the Emancipation Act to the formation of the Melbourne Ministry in 1835, the agitation for the Repeal of the Union was set on foot by O'Connell, as a means for coercing the English Government and Legislature, and obtaining "Justice for Ireland."

2. During the six years' tenure of office by the Melbourne Administration, O'Connell gave the Government almost uniform support, the Repeal Agitation was suspended, and the general condition of Ireland unmistakeably improved.

3. From the accession of Sir Robert Peel to power until his imprisonment O'Connell devoted himself exclusively to the Repeal Agitation. At the very moment when he attained to the utmost height of power and popularity, he was destined to the bitterest disappointment that can befall a political chief—to see the popular movement that he had seemingly led to the threshold of success utterly collapse, and such elements of strength as it possessed pass under the guidance of men who had revolted from his authority.

It was not in itself an unfortunate circumstance that the great measure of Catholic Emancipation should have originated with a Ministry previously identified with the party of resistance. If Wellington and Peel, the leaders of that party, had understood that when it became necessary to concede the demands of the Irish Catholics ordinary wisdom required that they should do so in a cordial and generous spirit, the work of reconciliation between the two countries would have been hastened by a quarter of a century. In point of fact, they soon made it too clear that privileges reluctantly conceded were intended to be in practice unavailing; and, with especial imprudence, they made the man who was confessedly the victorious leader in the great struggle the object of petty and irritating slights that could in no way diminish his power, but were certain to excite his enmity.

The event that immediately led the Wellington administration to yield Emancipation was O'Connell's triumphant election for the county of Clare. The only impediment that prevented him from at once taking a seat was the Oath of Supremacy, then obligatory on the members of both Houses. On the passing of the Catholic Relief Act he would, as a matter of course, have been entitled to enter the House of Commons on taking the new oath provided for Roman Catholic members; but the Government deemed it not unbecoming to introduce into the act words specially aimed at him, that made him ineligible until he had gone through another election.

The next slight was directed against O'Connell as a member of the profession in which by general consent he held a foremost place. The established usage of the bar in England and Ireland had always been to give the honorary rank of King's Counsel to the most eminent lawyers of the time, and nothing but professional misconduct had been held to be a ground for exclusion. When the law had declared the Roman Catholics eligible for the highest prizes of the profession, it became impossible to refuse them so slight a distinction. Accordingly some half-dozen of the foremost men were selected, while O'Connell, the senior in professional standing—already fifty-four years of age—and surpassing the rest in public reputation, was made still more conspicuous by the omission of his name from the list.

New and unlooked-for events, however, changed the aspect of affairs; and it seemed as though, for once, the evil destiny that so long presided over the relations between the two countries had yielded to more auspicious influences. The opportunity that was lost in 1829 recurred in the following year.

The accession of a new Sovereign, the fall of the Wellington Administration, and the formation of a new Government composed exclusively of the men who had so long sustained the cause of Catholic Emancipation, appeared to most men as the opening of a new era. For the first time in their history the government of both islands was vested in a body of men who were pledged by the whole tenor of their public lives to carry out in the spirit as well as the letter the principles of civil and religious liberty in dealing with the distracted people of Ireland.

That such was the spirit in which some of the members of the Grey Administration desired to act is now well known; but very different was the spirit in which the government of Ireland was conducted.

The task was, indeed, not easy. On the one hand the Protestants were deeply offended, and ill-brooked the change of system that threatened their undisturbed enjoyment of a monopoly of power, privilege, and pay. True, no great harm had yet been done. They were yet in possession of every post of the slightest value or importance. The Law, the Police, every local appointment, whether held under the Crown or by the favor of the landed gen-

try, were in safe hands; but it was intolerable to think that they might at some not distant time have to share the pleasant seats in the sunshine with the despised class whom they had so long kept out in the cold. On the other hand the Catholics, after recovering from the momentary exultation caused by the passage of the "Relief Bill," were suffering from still more bitter disappointment. They had been made eligible to hold places of trust and emolument, and their emancipation, if it meant anything, meant that they were henceforward to be dealt with on a footing of equality; but they saw too plainly that in practice the old system of Protestant ascendancy was maintained to the fullest extent, that for every post of importance—and most important in Ireland is the administration of the law—none but men conspicuous for hostility to them were deemed eligible.

It must be owned that the conduct of O'Connell during the year preceding the accession of the Grey Ministry to power had much increased the difficulty of their task. At no period of his career could he be made to feel the responsibility that presses on a leader of the people for the use of violent and exciting language. At that time, smarting under personal as well as national affronts, he repeatedly indulged in outbursts of invective so coarse and indiscriminate as to lower his credit with all parties in England.

The great difficulty of the Grey Ministry did not, however, lie in Ireland, or in Irish agitators, but in their luckless choice of the man through whom the affairs of that country were to be conducted. If ever there were an unhappy illustration of the mischief that comes of striving to fit a square man to a round hole, it was to be seen in the selection of Mr. Stanley, better known as the late Lord Derby, for Chief Secretary to the Lord Lieutenant of Ireland. Possessing brilliant natural abilities and more than average literary culture, born the representative of one of the great historic families of England, nature and fortune were united to secure for him a first-rate parliamentary career. But his very qualities only served to make more conspicuous his unfitness for the post assigned him. Knowing just enough of political history to furnish him with weapons for debate, but a stranger to the deeper lessons that are derived from study and reflection, he had

no store of wisdom on which to draw for guidance amidst the difficulties that encompassed him. Wisdom, indeed, if that had been added to his natural gifts, would have availed him little. His temperament—which even age did not subdue to calmness—was at that time so impetuous as rarely to leave him an interval for reflection before he had committed himself by speech or act. To a country where secular feuds were exasperated to their utmost violence, between the intolerant supporters of a falling monopoly and the turbulent leaders of a rising democracy, the Government sent a gladiator to preach the lesson of patience and moderation.

At the accession of the Grey Ministry O'Connell did not stand deeply committed to the Repeal of the Union. In his address to the electors of Clare, when forced to present himself a second time before them, the topic was altogether omitted, and a series of legislative measures to be obtained from the Imperial Parliament was confidently promised to the people. Most of the demands then put forth on behalf of Ireland, and several more besides, have since been accorded; but the masses in Ireland were less easily moved to struggle for the redress of tangible and practical grievances than for the "splendid phantom" of a National Legislature. O'Connell was too true an Irishman not to share in the aspirations of his fellow-countrymen, but far too sagacious and able not to prefer at all times the practical and the practicable. There is no room to doubt that for a long period O'Connell used the Repeal Agitation altogether as a means to obtain the set of measures collectively known as "Justice to Ireland" by the only method that experience had shown to be efficient with a British Legislature—making it unsafe to refuse them. It is quite certain that it would have been still easier in 1831 than it afterwards was in 1835 to induce O'Connell to moderate his demands and abstain from exciting appeals to the passions of the people. But the man whose office it should have been to urge patience and conciliation was the foremost to offer defiance. An Englishman not used lightly to deal with personal honor and self-respect might be excused if he were disgusted at the unmeasured license of O'Connell's tongue, but in Stanley's case the feeling of caste was superadded to the national instinct—the contempt with which

he was too ready to regard the Irishman was heightened by the sense of utter scorn for the plebeian.

It was not enough that a Liberal Ministry shrunk from any proceedings that could conciliate the support or mitigate the hostility of the great leader of the Irish democracy; their Irish policy was so contrived as to drive all the Roman Catholics, and many of the Liberal Protestants, into adherence—often reluctant adherence—to the political course of the great Agitator. The system of Protestant ascendancy was maintained to the fullest extent. Protestants alone—men personally respectable, but conspicuous for their hostility to the popular party—were selected to fill every important post, and the Under-Secretary of State, the most important wheel in the governmental machinery of Ireland, was the same man who had long been the willing and active instrument of the Orange party.

In the debate on the Address in 1833, in the fourth year of Catholic Emancipation, O'Connell brought forward a definite statement on this head in the House of Commons. There were then in Ireland thirty-four Stipendiary Magistrates, five Inspectors-general of Police, and thirty-two Sub-inspectors; the great majority had been appointed since the formation of the Whig Government, yet not a single Catholic had been chosen.

In his reply Mr. Stanley was able to cite three instances in which honorary unpaid distinctions had been conferred on Roman Catholic lawyers, but only a single instance in which a post of practical importance—that of Assistant-Barrister, or salaried Chairman of Quarter Sessions—had been given outside the pale of the favored creed.

Under such conditions was inaugurated the first Repeal agitation in Ireland, almost avowedly designed as a mere instrument for coercing the Government and Parliament to redress the many undoubted wrongs of the Irish people. If proof were wanted that at that period O'Connell had no serious expectation of success in his professed object, it is to be found in the fact that he not merely assented to, but actively promoted, the election of men not friendly to Repeal.

The secret history of the negotiations that preceded and followed the formation of the Melbourne Ministry in 1835 has not been given to the public. The alliance

then contracted with O'Connell has been the object of many accusations; it was a source of constant unpopularity in England, and mainly conducted to the ultimate fall of that Administration. Having at an early age been in frequent contact with most of the men who were concerned in the transactions of that time, I may declare my conviction that there was nothing in the terms of that alliance, nor in the intentions of the parties, that was other than creditable to their political wisdom and honesty.

The terms offered by the Government were none other than measures that were in themselves just and politic. The reform of the Tithe system, the opening of the Corporations to popular election, the abolition of Church Cess, were the most pressing matters requiring legislation. Doubtless O'Connell stipulated for the practical abolition of the ascendancy system, by not only giving a fair share of Government patronage to the Catholics, but also preferring Liberal Protestants over the partisans of the old system.

The extreme violence of his former denunciations of the Whig party under the preceding Administration made O'Connell's share of the treaty—the virtual abandonment of the Repeal Agitation—more difficult to accomplish than it would have otherwise been, but it was faithfully performed. The alliance, or compact, as they preferred to call it, was the theme of incessant assaults on the Ministry by the speakers and writers of the Tory—not yet Conservative—party; and it is a melancholy proof of the vitality of national and sectarian prejudices that the policy which for the first time gave hope for a reconciliation between the people of the two islands was the chief cause of the downfall of the Ministry that initiated it.

Bitter prejudice against the Irish Roman Catholics was not, in those days, by any means confined to the dense middle strata of English society; it held full possession of the still denser medium of the Squireocracy, and was largely shared by professed politicians. Even the King, more tolerant of difference of creed than of the democratic tendency of the Irish movement, fully shared the aversion to the Irish popular leaders. It is notorious that his dislike to Sheil made it impossible for the Ministry to offer any office, however subordinate, to the most brilliant orator on

the Liberal benches of the House of Commons; and there is strong reason to think that the King's personal feelings prevailed in a matter more important in its bearing on the condition of Ireland.

There is good ground for believing that, at the period of the formation of the Grey Administration, some leading members of the Whig party were favorable to a policy of cordial alliance with the Irish Catholics, and wished to see the vast influence of O'Connell enlisted on the side of law and order by appointing him to the office of Attorney-General for Ireland. A measure so bold was open to obvious objections, though few will now doubt that it would have been wise and statesmanlike. The opposite policy prevailed; and until the Melbourne Government succeeded to power on the failure of Sir Robert Peel in 1835, there was no question of an alliance with the Irish popular party. According to the true principles of our Constitution, it would have been right that a man exercising the great power then held by O'Connell, both in the House of Commons and among the people of one portion of the United Kingdom, should have assumed the duties and responsibilities of political office. It is, in my opinion, hard to believe that any other obstacle than the inveterate prejudices of the King prevented Lord Melbourne from offering, and O'Connell from accepting political office, and that on terms honorable to himself as well as to the Government with which he became connected. I may here relate an anecdote, of which I am unable to fix the exact date, but it must have occurred in the early part of the year 1837. Being at the time an undergraduate at Cambridge, I was walking down to the House with an Irish representative. At the corner of Downing Street we were suddenly confronted by O'Connell, who said, with an air of triumph, "You may congratulate me, my dear B.; I am Attorney-General for Ireland." In answer to some expression of surprise, he continued, "Yes, I have just been with Lord Melbourne, and I have determined to accept the office. But nothing must be said for the present." An hour or two later, O'Connell called the same member aside in the House of Commons, and told him that the arrangement was at an end, because the King had absolutely refused his consent. A promise not to mention what had occurred was

given and faithfully kept, and the writer held himself equally bound to silence during the lifetime of the persons concerned. It is right to say, that one of the few persons now alive who was in a position to be fully aware of every important step taken by Lord Melbourne is persuaded that no such offer was made, and that O'Connell must either have deceived himself as to the nature of the proposition made to him, or from some inexplicable motive have made an unfounded statement. I am unable to offer any explanation, but at this distance of time I can see no reason for withholding the incident as it occurred.

It is unhappily certain that the opportunity for reconciling the people of Ireland to the Legislative Union that was opened by the policy of the Melbourne Administration was not secured. The responsibility rests on many shoulders, but mainly on those of the leader of the party of resistance, Sir Robert Peel. If that able man has been truly described as the greatest Member of Parliament of our century, his conduct in regard to Ireland alone suffices to show that no Prime Minister since the time of Lord Liverpool has less claim to the rank of statesman. Instead of perceiving that the interests of the empire, as well as those of his own party, were concerned in satisfying the reasonable demands of the Irish people, he exerted all his great skill as a party leader in delaying measures that he could not defeat, and haggling over miserable details when everything like principle had been conceded. Witness the long contests over Irish Corporation Reform, dragged on through four sessions of Parliament, and delayed for an additional year because the Opposition in the House of Lords would not yield 1*l*. a year on the qualification clause.

Nothing was more vehemently assailed in the conduct of the Melbourne Ministry than the administration of Government patronage in Ireland, and on no point—at least during its earlier period—was it less open to just blame. The whisper of complaint has never yet been heard from any party in Ireland against the men who were promoted to the judicial bench. For the first time the whole people of Ireland, of whatever creed or faction, began to conceive the possibility of obtaining impartial justice from the regular tri-

bunals. Far be it from me to say that before them no just men had sat on the Irish bench, but the instances of scandalous partiality were too many and too recent, and the system of exclusiveness had too thoroughly blocked up the channels of justice, for the mass of the people even for a moment to expect a share in it.

Personally, O'Connell was not chargeable with self-seeking in the disposal of Government patronage. He did not, as had been the usage in Ireland with men of the highest social position, provide for most of his relatives and family connections at the public expense. Some unfit and several inefficient men owed to his favor their promotion to places of secondary importance; but this is no more than happens even to the most scrupulous distributor of patronage. It was not till the later period of the Melbourne Administration that a new political disease began to establish itself in Ireland, for whose growth and extension both O'Connell and the Ministry were to a considerable extent responsible.

It is but just to O'Connell to say that at the time when he first obtained preponderating political power in Ireland he showed no disposition to use that power arbitrarily, so as to secure the return to Parliament of his personal adherents. Still less did he give the slightest preference to candidates on sectarian grounds. At the time when his influence was greatest, and when he undoubtedly controlled one-half of the Irish elections, the number of Roman Catholics out of about seventy Liberal representatives never exceeded twenty-six. But a state of political feeling in which one man is able to exert so much power is in itself unsound, and was sure in the long run to breed abuses. Cases frequently arose where O'Connell had practically the nomination of a representative for a popular constituency. It was not to be expected that men of independent character and real ability would seek to enter public life as the passive instruments of a policy that they could in no way control. It was, perhaps, by no fault in O'Connell that his choice on these occasions was very restricted, but undoubtedly his taste was not squeamish. As the members of the Imperial Parliament saw in succession on the benches behind the great Agitator new representatives of Irish constituencies, whose slight-

est defect was their ignorance of the forms of polite society, the feeling of political aversion grew to a pitch of exasperation not before seen in Parliament. The class in question—O'Connell's "tail," as they were called—never formed more than a small minority among the Irish Liberal members, yet they sufficed to bring into bad odor the entire body. In plain truth, not a few of these men were needy adventurers, who seized the chance of securing a prize—some paltry place with an income of a few hundreds a year after an interval of political subserviency in the House of Commons.

Before long, as corruption has a marvellous tendency to develop new species and varieties, a still uglier sort of "patriot" came upon the stage. Devoted to the service of his country, he never demanded direct recompense for his disinterested support of the Administration. But he was unceasing in his endeavors to obtain appointments for others. He was an adept in describing the personal, moral, and political claims of his *protégés*, and rarely failed to obtain from the weary Secretary of the Treasury the nomination to every post in any way connected with the county or borough which he represented. In practice, the patronage thus obtained was made a matter of shameless traffic. The candidate bargained with the popular member, and did not receive his appointment until he had actually paid down as much as two or three years' salary of the promised post. Such samples of the genus Patriot were indeed not common. I do not believe that at any one time their number in the House of Commons exceeded three; but the mischief effected was out of all proportion to the cases that actually occurred. It may be said that neither O'Connell, nor the English gentlemen who had the disagreeable task of managing the Irish members on behalf of the Government, knew of these transactions. They doubtless had no distinct proof of their existence, but I am quite sure that ample and notorious ground for suspicion existed, and that anyone who cared to make inquiry could have obtained adequate proof of the truth. To say that a fact is notorious in a certain society often means that you have no clear or positive evidence; but upon this matter I can say that I have had the most direct and convincing testimony, not as to one only,

but as to several separate instances of traffic in Government patronage; and hundreds of persons not directly connected with them must have had equal opportunities with myself. At the same time, I feel equally sure that if anyone had had the hardihood publicly to charge the authors of these scandals, he would have failed ignominiously in his efforts to expose them. All the parties concerned would have solemnly denied everything that had occurred.

It is quite true that even the worst of these instances of political corruption fell far short of those that commonly occurred under the old system, when the Irish Parliament was exclusively Protestant and aristocratic in composition. It was, perhaps, only natural that in a country where such seed had been profusely sown it should blossom forth on new soil; but it is part of the penalty that a man pays for such power as O'Connell then held that he is deemed responsible not only for what he does, but for what he omits to do. It would be unjust to say that O'Connell lowered the tone of political morality in Ireland, but it is true that he failed to use his vast influence to raise and purify it.

If we must acquit him of complicity in downright corruption, we cannot even say so much as to one form of political dishonesty which has always been leniently regarded in Ireland, and, it is to be feared, has a tendency to extend in this island also. To curry favor with the populace by pandering to the vulgar liking for abuse of those in higher position or authority is in democratic societies a constant temptation to the politician; but in such a country as Ireland, where disaffection lies deep in the breasts of the people, the man is positively criminal who excites it without any real belief in what he says. Yet at the very time when the sole object and intention of many "patriotic" candidates was to earn by steady parliamentary support of the Government some miserable appointment, they rarely addressed a constituency without denouncing the English (or usually *Saxon*) Parliament and Government. Ludicrous illustrations of this were constantly afforded. A very well-meaning country gentleman who had joined one of O'Connell's numerous political associations told me that he was once placed in a great difficulty when, on entering a meeting, he was suddenly called on

to take the chair. Not being so ready of speech as most of his countrymen, he said anxiously to some one of the minor fry of agitators who was present, "What am I to do? What am I to say?" "It's the asiest thing in the world," was the reply; "just say a few words about your country, and *abuse the Government*."

O'Connell was, indeed, no mere demagogue. On more than one occasion he showed true courage and patriotism by withstanding the popular impulse of the moment, and if he too often pleased the mob by coarse invective, he merely indulged in the expression of feelings that at the time were thoroughly sincere. But he was certainly not scrupulous as to the means by which he excited and maintained popular enthusiasm, and still less inclined to set up a high standard for his followers. English Ministers thought it a light matter that their Irish supporters should use wild language in Ireland, so long as they never failed when wanted in the division lobby; but great as are the obligations that Ireland owes to the Melbourne administration—the first that ever attempted to deal justly and generously with the mass of the population—it is a grievous drawback that it should have had a direct share in inflicting on Ireland the worst evil that now afflicts her—the trade in sham-patriotism.

The fall of the Melbourne Government and the accession to office of Sir Robert Peel mark the commencement of the last period of O'Connell's career. Peel was no way incapable of dealing impartially with Ireland, and several of his colleagues were full of excellent intentions; but he had committed the immense blunder of allowing the passionate resentment of the Irish Tory party to direct his policy as leader of the Opposition. On crossing to the Ministerial side of the House he carried with him these compromising allies, and secured the bitter hostility of the popular party in Ireland. The immediate consequence was that O'Connell thenceforth devoted his utmost energies to the revival of the Repeal Agitation on a scale more formidable than it had ever before attained. Whether he merely intended once more to use the Repeal Agitation as an effective weapon of political warfare, or had finally despaired of obtaining necessary reforms from the Imperial Parliament, it is not easy to decide; but it is

to me quite certain that the enthusiasm which he succeeded in exciting through the greater part of Ireland reacted to a marvellous extent upon his own impressionable nature. Having converted the mass of his countrymen, he finally converted himself, not merely to the belief that Repeal was desirable—for so much he perhaps always did believe—but to the conviction that it was attainable. Never, perhaps, has a man engaged in political life been subjected to influences so calculated to excite and to intoxicate. The favorite of a senate will always meet some wholesome opposition, but the "uncrowned monarch" of the Irish people was for more than a year carried forward on one constantly rising wave of popular enthusiasm. He was not the cool contriver who could sit down to calculate the forces at his disposal, and the obstacles in his way, but the most Irish of all Irishmen, moved by the like passions and affections with the people whom he swayed, capable at one and the same moment of genuine faith and devotion to a cause, and of resorting to mere artifice and cunning in the means for advancing it; an enigma to all Englishmen, because he was compounded of qualities that among them are absolutely incompatible.

Mr. Lecky has touched with a delicate pen the closing portion of O'Connell's career—the blow struck by his imprisonment; the increasing feebleness, caused more by disappointment than organic disease; the dark shadow of the famine closing over his country, and threatening to engulf all classes in one common ruin; and, bitterest of all, the political organization that he had created and led to victory, to which he trusted for whatever was yet to be achieved for his country, shattered to utter impotence by the revolt of the younger and more energetic portion of his followers, who openly defied his authority, and cast suspicion on his motives.

The man who devotes his life to his country in the career of political conflict too often undertakes a thankless task, and he who is not sustained by the loftiest motives must look for no solid reward; but a sadder ending than this of O'Connell is scarcely to be found on record.

Who can look hardly on the record of a life wherein such mighty energies were devoted to the service of an oppressed nation? If in his course he sometimes

swerved from the straight path, his faults were severely chastised. The mischief that he did lived after him, and some part, at least, of the good was interred with his bones. His remains were not laid to rest on his native soil before the great lesson of legal and peaceful agitation that he had so steadily inculcated was derided and abjured by the most conspicuous of his followers.

Of the Young Ireland party, as they were generally called, it is impossible to speak without a share of respect. If some amongst their leaders were men of little real ability, whose shallow brains were stirred up by listening to their own or their companions' frothy declamation, others were made up of more solid stuff, and under more fortunate conditions, might have done real service in political life. In so far as it was a revolt against the dishonesty and corruption of a section of O'Connell's followers, it was a righteous movement, and demanded the sympathy of every honest man. But the main principle of the party—the right to seek political changes by physical force—was condemned in advance to ignominious failure whenever the attempt to apply it should be made. Young men who had not yet learned that armed rebellion in a country ruled by public opinion is a criminal anachronism, discovered that the teachings of O'Connell, though seemingly forgotten, had sunk deeply into the popular mind. Treason was, indeed, the fashion. The writings of the Young Ireland chiefs were widely read, their speeches were cheered to the echo, and the noise was so great that even experienced statesmen* were led to think that it meant something formidable. But although a disaffected people wished well to Smith O'Brien and his confederates, as they would have done to any other enemy of British power, they were

* It is known that the late Lord Clarendon, then Lord Lieutenant, was so much impressed with the gravity of the situation that he apprehended the insufficiency of the military force at his disposal, and contemplated the probability of recurring to the support of the Orangemen of Ulster. The writer, who had shortly before travelled through many parts of the South and West, cannot forget the look of incredulity with which that able diplomatist listened, a few days before O'Brien's abortive effort, to the confident opinion that a single regiment would be more than sufficient to meet and disperse any insurrectionary force that could be got together.

very far from that frame of mind that will carry undisciplined men to face the bayonet. Ever since O'Connell showed what might be effected by peaceful agitation, the belief in insurrection as a practical remedy for political and social wrong has gone out of the Irish people.

The Young Irelanders themselves have outlived the errors of their hot youth. They have by this time discovered that corruption and venality flourish under a Republican constitution still more freely than in the mixed political system of the old country. The absurd notion that there is something unbecoming a patriot in the acceptance of office in the public service, and in receiving for honest work remuneration much less than can be gained in professional or commercial pursuits, has not quite disappeared in Ireland, because the very basis of public morality in this relation had been sapped by scandalous appointments of men whose chief claim to preferment was political dishonesty. But since the ablest of the Young Ireland leaders has, in another hemisphere, held conspicuous office which he owed to the merited confidence of his fellow-citizens, and has accepted not only the emoluments of office, but honorary distinction from the Crown, it may be hoped that the confusion of ideas prevailing in Ireland will pass away, and that men will understand the simple proposition that what is discreditable is not the place, but the ladder by which some have reached it—that the fee earned by the skilled practitioner is one thing, and that pocketed by the impudent quack a very different thing.

The condition of Ireland is not yet what men whose patriotism includes the whole empire in its aspirations may have hoped and desired. Disaffection, lying deep, but by no means of a practical character, is still widely spread. This is discouraging; but let rational Englishmen ask themselves whether it is unnatural. For how long a time did English prejudices prevent a fair trial of the Union between the two countries? For the last five-and-twenty years you could find no man of the least pretension to political sagacity who did not own that the retention of the Irish Church establishment was indefensible in principle and mischievous in practice, and yet it stood untouched till 1869. The more excusable prejudices that impeded any change in the legal rela-

tions between landlord and tenant yielded only in 1870 to Mr. Gladstone's Land Bill, and for the first time you could say with truth that Irish disaffection must seek its justification in the past. The single difficulty that remains will be easily solved if you will but remember that whenever you have allowed religious prepossessions or antipathies to guide you in legislating for Ireland, you have invariably committed a blunder, as well as an injustice. Once allow that other men have a right to hold opinions very different from yours, ask yourselves what you would admit to be just treatment if you could change places and opinions with them, and you will not go far wrong in dealing with Ireland.

The cry for Home Rule is not pleasant to our ears. We know well that in the mouths of ninety-nine out of every hundred who use it it means nothing else than disaffection. A few men may mean the very true and simple proposition that the House of Commons has undertaken more work than it can perform efficiently, and that local business could be better transacted in local assemblies. This is no more an Irish grievance than it is a Welsh or a Yorkshire grievance. The agitation, so far as it has real importance, has little or no reference to a practical remedy for a practical evil. It means simply that you have not yet cured the disaffection that you have earned by centuries of misgovernment. It is unreasonable on your part to have expected to do so. Wrongdoing would be made too pleasant and easy in this world if everything were set right by merely ceasing to do wrong. But although it may be long before Irish disaffection will entirely cease, it has become much less formidable since the two great grievances have been removed. The peasant is now enjoying comparative prosperity, and by Mr. Gladstone's Land Act he has acquired that sense of security which, more than anything else, attaches men to the cause of order. The introduction of competitive examinations for appointments in the public service is a still more efficacious means for creating a feeling favorable to union with England. Unlike the old system of appointment through political influence, this elevates instead of degrading the successful candidate, and the large proportion of Irishmen that gain the prizes supplies an argument whose cogency

is felt by all the educated or half-educated classes in Ireland.

So far as I can see, the agitation for Home Rule, or repeal of the Union, is not likely to give any serious trouble, unless by glaring bad policy a vitality is given to it which it does not inherently possess. When orators whose trade is agitation are allowed to tell the people with truth that measures proposed by men responsible to the country, which would undoubtedly be accepted by an Irish Parliament, cannot be carried out because of the prejudices of English and Scotch representatives, or the reluctance of the House of Peers, a valid argument is supplied—*pro tanto*, against the Legislative Union.

It is a still more obvious blunder to show favor to those who aid the anti-Union agitation. The Minister who gives pay or preferment to venal sham patriots abets a movement hostile to the welfare of the entire empire, and at the same time does a special wrong to Ireland, by nurturing the worst disease under which she labors—utter disbelief in political honesty.

If the younger men amongst us shall live to see complete and cordial union between the people of both islands, there can be no doubt that in the roll of national benefactors to whom that consummation will be due, the foremost name must be that of Daniel O'Connell. It is not only that he was the first to compel the rulers of the empire to commence the era of justice that alone makes Union possible. His work was greater than this: He found his countrymen slaves; he raised them from the dust, and first taught them to assume at least the attitude of freemen. The education of a people is a slow work; but if at no distant time they are fully worthy to take the place that is prepared for them—that of free citizens of a great united empire—sharing the vanward post in the great advance of political and social progress, they must never forget that the first lessons of freedom were received from the lips of O'Connell.

Of O'Connell the man, such as he was known to his contemporaries, the next generation will find it difficult to form a just conception. Nothing could be stronger than the animosity which he excited amongst his opponents, unless it were the enthusiastic attachment felt towards him by his personal friends and followers. His

faults were on the surface, and were exactly those that most surely shock and offend educated Englishmen. His invectives not rarely descended to scurrility, and his disregard of literal truth and probability in his popular addresses was such as, in an Englishman, would have implied utter want of principle. The irrepressible tendency to exaggeration inseparable from the Irish nature will not, however, be severely judged by posterity. It must be noted that, with scarcely an exception, his violence was excited, not by personal, but by national feelings. His vituperation was directed against the enemies of Ireland, not against the enemies of O'Connell.

If his political friends learned to place implicit confidence in his courage, his energy, and the boundless resources of his inventive intelligence, the personal devotion that he awakened was due to qualities of another order. He was a true friend, faithful to all who had ever done him a service, and possessed in the highest degree that personal charm of manner and conversation that people of other countries usually attribute to the typical Irishman. But he proved himself to own virtues of a higher and rarer order. On several important occasions, and notably in regard to trade combinations and the Poor Law question, he boldly took the unpopular side, and did not shrink from the clearest expression of his opinions. This does not seem difficult to men who depend upon parliamentary support for political influence. They may reasonably expect that justice will in due time be done to their motives. The case is very different with a man who holds power and importance by the fleeting tenure of popular favor; and one such sacrifice made to conscience should outweigh many a blemish in the career of a popular leader.

Those who best knew O'Connell are able to cite many an instance of magnanimity that contrasts strongly with the unscrupulousness of which his opponents constantly accused him.*

* An instance, vouched by a person well acquainted with both the parties, has been lately given to me. O'Connell had been on terms of intimacy with P. M., an able and influential man, well known in Dublin. A quarrel, arising from some political difference, broke out between them. O'Connell denounced his opponent in language

Of him, as of nearly all men who have taken an eminent part in public affairs, we may say that, although his aims were lofty, he was not careful in his choice of means. The worst that can with justice be urged against him is that he was too tolerant of baser men, who used low means to compass low ends, so long as they were ready to swell the ranks of his auxiliary forces.

When the future historian is able calmly to survey the miserable history of Ireland up to the end of the last century, he will,

perhaps, regard it as no slight testimony to the qualities of the Irish race that it should at such a time have impersonated itself in a figure so commanding and so free from base admixture. If it prove the great qualities of the man that he should have acquired such power over his countrymen, it says not a little for them that the man to whom alone they gave their entire hearts was one whom they may present without shame to the scrutiny of succeeding generations.—*Macmillan's Magazine*.

PEKIN.

THE ancient capital of Northern China, three days' journey from the Great Wall, on the Siberian road, uprears itself from a hideous, seemingly boundless plain of dust, strewn with remnants of old buildings, and all kinds of disheartening rubbish. There is perhaps no portion of the earth's surface on which the European feels more hopelessly far away from every familiar place and person, than when traversing this great desert plain heaped with the dust of ages. A few crumbling villages break the monotony; and then comes a wall of immense length, brown, crenulated, pierced in the centre by a magnificent portico, the finest 'gate' in all the Celestial Empire. It is like the Scripture picture of the walls of Babylon and the formidable ramparts of Nineveh. A lofty tower is surmounted by a roof, consisting of five stages of green tiles, pierced by five ranges of holes, through which grin huge cannon-mouths, very terrible, until one learns that the guns are wooden. Far out of sight on right and left stretches the wall, partly of granite, partly of huge gray bricks, and at its foot opens a deep vaulted passage, through which pour converging tides of Chinese, Mongols, and Tartars, strings of blue carts, files of black mules, caravans of dun-colored, heavily laden camels; for

this is the entrance to the Chinese town. The ancient city is divided into three sections—the Chinese, the Tartar, and the Imperial, and each has a perfectly distinct physiognomy.

The majestic beauty of the 'gate' passes like a dream, and the traveller finds its stateliness utterly reversed by the scene which it incloses. Waste land, tumble-down huts, sinuous ways—half paved with enormous blocks of stone, half left in yawning gaps a couple of feet deep—dirt, poverty, desolation; through these one struggles on until a second wall stops the way. It is still more majestic and Babylonian; it is sixty feet high, and forty feet wide, and it divides the Chinese from the Tartar city. On the other side is a kind of circus without benches, which is formed of gigantic walls protecting the principal gate, and is very like a spacious bear-pit. Nobody is permitted to pass through the central aperture except the emperor; so the traveller passes under the great arch at the side, and is generally instructed by his guide to ascend some steps to the top of the wall, from whence he can command a view of all Peking. A wonderful sight, grand, melancholy, and suggestive. Three concentric cities, divided from each other by inner walls: first, the Tartar city, which is the largest, and has upon it the warlike stamp of the conquering race; then the Imperial city—with the palaces of the mandarins, each consisting of nearly a hundred kiosks; and finally the forbidden city, with its thousands of roofs in imperial yellow, and its Me-chan, the *sacrosanctum* of the Celestial Empire.

Forming the vast mysterious inclosure

of extreme violence, and for many years they were on terms of mutual hostility. Long afterwards P. M. told my informant that during the period of their friendship O'Connell had become aware of circumstances of a private nature which, if published, would have been ruinous to the position and credit of his adversary, but, in spite of the violence of their subsequent quarrel, was never led to divulge them or allude to them in any way.

of the forbidden city are walls, on whose summits four carriages might be driven abreast; the countless roofs of the mandarins' palaces are bright green, the domes of the temples are dark blue; there are great spaces paved with pottery, and there are marble bridges. But all this splendor is set in a framework of crumbling, dusty ruin. Everything is extraordinary in this wonderful place, which is an epitome of decay. Thebes, Memphis, Carthage, Rome, are ruins which tell of violent vicissitude; Peking is a skeleton dropping into dust. The ravine-like streets are knee-deep in every sort of rubbish; the moats, the canals, and the rivers are all, and always, dry; the formal parks, the once marvellous ponds, are turned to desert places. Triumphal arches stand side by side with wretched tumble-down booths, surmounted by a forest of little poles, whence paper 'signs' dangle in the air, and uniformity is lent to all by the thick layer of evil-smelling dust which lies upon them, the same dust that is always whirling around, hurting the eyes, and offending the nostrils.

This great city, in which nothing is ever repaired, and where it is penal to pull down anything, is dropping to pieces; and it is the opinion of M. de Beauvoir, the French traveller, to whom we owe the best and most picturesque account of Peking yet given to the western world, that in a century it will have been abandoned and have ceased to exist.

A poetic element reigns at Peking, with all its dust and quaintness, making one see the soul of that wonderful verification in life, and on a huge scale, of the designs on screens and plates with which every one is familiar. The imperial city is a vast assemblage of the turrets, the belfries, the steep bridges, the balconies, and the kiosks, which we have seen a thousand times in lacquer. But they are reached through the Gates of Virtuous Victory, of Great Purity, of the Temples of Heaven, of Agriculture, of the Genius of the Winds, of the Genius of the Lightning, and of the Bright Mirror of the Mind. Every year the emperor, arrayed in a country costume, with a straw-hat a yard in circumference (afterwards hung up in the temple), drives a golden ploughshare through a field, that the tracing of the furrow may call down the blessing of Buddha upon the seedtime and the harvest. Every six months the

emperor burns a number of death-warrants in bronze brasiers, ranged under a roof of dark-blue porcelain, between curule chairs of pink marble, in front of which are dragons and pugs in the rarest china, perched on columns of carved wood. A little beyond the temple where these ceremonies take place, there stands, built upon the wall, a magnificent observatory, 273 years old. The gigantic bronze instruments, curiously wrought, rest upon the outspread wings of flying dragons; a celestial globe eight feet in diameter shows all the stars known in 1650, and visible at Peking. Such is the dryness of the climate, that the whole apparatus of the observatory, though exposed to the open air, is wholly uninjured, and the instruments act with unerring precision.

Close by the Hall of Examination for the literates, an immense rectangular building which accommodates twelve thousand candidates, are 'the redfish pond,' in which there is neither water nor fish; two great theatres, the Temple of the Moon, and that of the Lamas. Here, as at Lhassa, a thousand bonzes, clothed in yellow, chant in hollow tones an eternally monotonous rhythm. In the Temple of Confucius, the devotions are not chanted, they are, so to speak, 'ground' in a huge prayer-wheel. In this temple hangs the largest bell which has ever been hung (the famous bell of Moscow has never been lifted off the ground); it is twenty-five feet high, weighs ninety thousand pounds, and is covered with the finest carving.

The private life of the Chinese is, especially at Peking, so profound a mystery for Europeans, that there is nothing to interest them in the city except its architecture and ornamentation, which, though most curious and ingenious, does not appeal to any of the tastes or sentiments of western peoples. There is always food for the imagination in the contemplation of the outside of objects whose interior is 'forbidden,' and thus the traveller looks longingly at the inclosure of the sacred city, which he must never pass, and dreams of the treasures which it is said to contain—the golden columns, the silver mats, the furniture incrustated with fine pearls; but what he sees is a very rude case for such a jewel. As for the famous Me-chan, a very third-rate pagoda in Siam is more splendid, externally, than the sacred dwelling of the Son of Heaven. At Peking

external ornament, or even decency, is not regarded as desirable. The city is sedulously divided into the noble and military, the trading and the poor quarters, and in the former it is etiquette to conceal all curiosity concerning strangers. After a while, the traveller learns to recognise the rank of the mandarins by the arrangement of the movable wheels of their carriages. The more 'blue-button' or 'red-button' a mandarin is, the farther the wheels are removed from the centre of the huge machine. The palanquin is a far easier vehicle than the jingling, jolting carriages, but the use of it is sedulously restricted to princes and ministers.

The middle-class and poor quarters of the town have something picturesque about them in the midst of much which is horrible. They consist of one interminable winding street, with an impossible name, in which there are three hundred shops with scarlet boards hanging upon poles before them, covered with gilded inscriptions, and where only animation exists in Peking. The motley scene is crowded with carts, palanquins, camels, mules, coolies, Chinamen, buying, selling, poking about and examining all sorts of merchandise, myriads of children, and old men pushing their way to the waste grounds near the walls, that they may proudly fly the kites whose cords they hold in their hands. Absurd as the notion of kite-flying as a national pastime seems to us, it is interesting to learn to what a pitch of perfection the manufacture of the familiar toy has been carried. M. de Beauvoir says: 'I have seen in numerous instances a kite which becomes a flying dragon, a flying eagle, or a flying mandarin, seven yards in circumference, lighted, and given motion and gesture.' They construct these wonderful things *without tails*, a peculiarity which implies extraordinary art; and so dexterously manage their equilibrium, that they rise calmly, steadily, without any of the jerks of our kite-flying, and float, glittering like stars, vertically above the head of the cord-holder. They fit a kind of Æolian apparatus to them, almost imperceptibly small, which imitates the songs of birds or the voices of men, and, when the air is crowded with kites, produces a tremendous noise; and they send 'messengers' up the cords with an incomprehensible dexterity. Another singular musical invention deserves special notice. They make tiny

Æolian harps hardly heavier than soap-bubbles, but beautifully worked, and affix them to the tails of doves and pigeons, fastening them to the two central feathers; as the birds strike the air, it resounds through their harps, loudly or pathetically, according to the speed of their flight. Nor are these tiny triumphs of ingenuity merely mechanical inutilities, like so many Chinese *curios*; they serve to save the birds from the claws of the vultures which swoop in ominous flocks above the bastions.

Outside the trading quarter commence the horrors of the ancient capital; and the unwary traveller, following the multitude peacefully pursuing their way, entirely indifferent themselves, and unconscious that strangers may not be so enviably constituted, finds himself in the Avenue of Executions, which is simply the junction between two of the main thoroughfares. The whole apparatus of justice consists of a shed and a bench, in front of which groups of condemned criminals are ranged, whose heads the executioner strikes off, each with one blow of his sword. There is no ceremony, no guard, no solemnity; the people pass by, unconcerned; and when the daily batch of victims has been despatched, a butcher takes the place of the executioner, and exhibits joints of beef and mutton on the bench still wet with human blood. A little beyond this barbarously simple slaughter-house, the decapitated heads are exposed in the open street, in wicker baskets, inserted into iron sockets. A slip of paper is attached to each of these ghastly heads, whose eyes and mouth are open, with the following inscription: 'Justice has punished theft.' Nor is this the worst. The heads are not buried after their exposure; removed from their baskets by the crowd of leprous and blind beggars, who assemble daily upon the famous 'Bridge of Tears'—a fine antique structure in marble—they are salted, and eaten! This one horrid fact alone should make us hope that Peking may not live for the predicted century. The great augmentation of commerce of late years, the gradual breaking of the barrier of exclusiveness, and the establishment of wise counsellors about the young emperor, lead us to hope that better days may be coming, and that Peking may not be buried in its own dust, but may arise, and shake it off. Revolutions such as that which is accomplishing itself in Japan are, happily, infectious.

The Mongols—who despise the Chinese, and employ their own national name 'Mongol' as the sole mode of expressing the idea of courage and virtue—come to Peking to sell horses, and sheep with long wool, and flat wide tails. The Mongol caravans are highly picturesque, as they traverse the dusty desert, on which the traveller falls in with them on his way to see one of the wonders of the world, the Great Wall of China. These caravans are marshalled after the immemorial fashion of the East; headed by a chief, to be recognised by his arms; the men perched between the humps of the camels, who walk in single file, each fastened by the head to the tail of the preceding one, and slowly swinging the long pendent bell of bronze, painted scarlet, which hangs at his neck. The men are fierce, proud-looking, and handsome, and their dress is imposing. It consists of long robes of red leather, lined with thick furs, and immense caps of bearskin, with strange coral ornaments.

On the second day's march towards the Great Wall the travellers reach 'the fortified city of Tchang-Piu-Tchao,' and find it is a filthy hamlet with mud walls. Next morning they come to the five majestic gates of the Valley of the Tombs of the Emperors. This valley, which is all sand, is shut in on the other side by an amphitheatre of lofty mountains, at whose feet, surrounded by green trees, stand thirteen gigantic tombs, arranged in a semicircle. The long avenue which extends from the entrance of the valley to the tomb of the first emperor, a distance of three miles, is marked out, first by winged columns of white marble, then by two ranges of sculptured animals of colossal size: camels, elephants, hippopotami, lions fifteen feet high, and each cut out of a single block of granite, winged dragons, a number of other animals, and then twelve emperors three times the size of life, helmed and cuirassed. What superhuman labor does this wonderful avenue imply! Well may M. de Beauvoir remind us that the men of the age which saw those blocks of granite rolled into the midst of that sandy plain, must have been men who did not consume their lives, like the Chinamen of to-day, in gambling and opium-smoking dens. At

the end of the avenue are the tombs: each is a temple, in which white and pink marble, porphyry, and carved teak-wood are blended in a tasteful harmony, and with grand, severe lines, very rare in Chinese architecture. The austere splendor of these funereal palaces has undergone no change for nine hundred years; since an entire people in mourning escorted the golden coffin of the Ming emperor on its road between the colossi in granite, the 'howlers' flung themselves down and grovelled before his tomb, and the diggers who laid his ashes in the dust they had dug into were slain upon the spot, lest the secret of the treasures buried with him should be betrayed.

One more night, and Nang-kao is passed, and a wild dark gorge is entered, formed by precipitous mountain sides and the dry bed of a torrent; this gorge opens into a rocky valley, most majestic and forbidding. A chain of walls, surmounted by high turrets and crenulations, runs along the top of the terrible rocks, following their sinuosities like a serpent, far out of sight. At first, the traveller thinks this is the Great Wall; but when he has advanced far upon the difficult road through the valley, he sees the sun shining on two other parallel walls, side by side upon the extreme crest of the tremendous rocks, and standing out in clear profile against the sky. One more plunge into a deep dark gorge, whence the traveller emerges upon a sheet of ice, to find himself confronted by two scarlet kiosks, perched like eagles' nests on the summits of two black rocks, which form a natural gate to a new pass. Flocks of wild ducks and geese fly screaming overhead; for many leagues around, not a human being is visible. A little later, and he has reached the bastion which separates Mongolia from China. Its base and its windows are slightly dilapidated; but the Great Wall, which rises abruptly on the right and left, and winds, 'a fantastic stone serpent,' along the crest of the principal chain, and over the hills and far away, with its square towers rising at intervals, to break the undulating line, until it passes out of sight in the dim distance, is in perfect repair. As the hands of the builders left it, two thousand years ago, it stands to-day.—*Chambers's Journal.*

THE WEATHER AND THE SUN.

BY RICHARD A. PROCTOR, F.R.S.

THERE are few scientific questions of greater interest than the inquiry whether it is possible to find a means of predicting the weather for a long time in advance. In former ages many attempts were made to solve this problem by a reference to the motions of the heavenly bodies. Other methods of prediction were, indeed, in vogue; but I am not here considering ordinary weather portents, or mere scientific schemes for anticipating the weather of two or three coming days: and with a few trifling exceptions, depending on observations of plants and animals, it is the case that the only wide rules for predicting weather were based on the motions of the sun and moon, the planets and the stars. It must be remembered that even astronomers of repute placed faith, until quite recent years, in the seemingly absurd tenets of judicial astrology. We cannot greatly wonder, therefore, if the more reasonable thesis that the heavenly bodies determine weather changes, was regarded with favor. Accordingly we find Horrocks, more than two centuries ago, drawing the distinction here indicated, where he says, that in anticipating "storm and tempest" from a conjunction of Mercury with the Sun, he coincides "with the opinion of the astrologers, but in other respects despises their more puerile vanities." We find Bacon in like manner remarking that "all the planets have their summer and winter, wherein they dart their rays stronger or weaker, according to their perpendicular or oblique direction." He says, however, that "the commixtures of the rays of the fixed stars with one another are of use in contemplating the fabric of the world and the nature of the subjacent regions, but in no respect for predictions." Bacon remarks again that reasonable astrology (*Astrologia sana*) "should take into account the apogees and perigees of the planets, with a proper inquiry into what the vigor of planets may perform of itself; for a planet is more brisk in its apogee, but more communicative in its perigee: it should include, also, all the other accidents of the planets' motions, their accelerations, retardations, courses, stations, retrogradations, distances from the sun, increase and diminution of light,

eclipses, &c.; for all these things affect the rays of the planets, and cause them to act either weaker or stronger, or in a different manner."

It is a remarkable circumstance that systems of weather prediction based on such considerations were not quickly exploded owing to their failure when tested by experience. Yet singularly enough it has scarcely ever happened that any wide system of interpretation has been devised, which has not been regarded with favor by its inventor long after it had been in reality disproved by repeated instances of failure. This remark applies to recent systems as well as to those invented in earlier times. Within the last twenty years, for example, methods of prediction based on the moon's movements, on the conjunctions of the planets, and on other relations, have been maintained with astonishing perseverance and constancy, in the face of what outsiders cannot but regard as a most discouraging want of agreement between the predicted weather and the actual progress of events. Here, as in so many cases of prediction, we find the justice of Bacon's aphorism, "Men mark when they hit, and never mark when they miss."

It is noteworthy, indeed, that the very circumstance which appears to present a fatal objection to all schemes of prediction based on the motions of the celestial bodies, supplies the means of imagining that predictions have been fulfilled. The objection I refer to is this,—we know that the weather is seldom alike over very wide regions, while nevertheless the celestial bodies present the same aspect towards the whole extent of such regions, or an aspect so nearly the same as to suggest that the same conditions of weather should prevail if the weather really depended on the position of the heavenly bodies. It appears, then, that the inventor of a really trustworthy system must have a distinct scheme for each part of every continent,—nay, of every country, if not of every county. This objection is not taken into account, however, by the inventors of systems, while the fact on which it depends affords the means of showing that each prediction has been fulfilled. Thus, suppose "bad wea-

ther and much wind" have been predicted on a certain day, and that day is particularly fine and calm in London. If this were urged as an objection to the soundness of the system, the answer would run somewhat on this wise—"Unquestionably it was fine in London, but in North Scotland (or in France, or Spain, or Italy, as the case may be) there was very gloomy weather, and in Ireland (suppose) quite strong winds are reported to have prevailed in the afternoon." The readiness with which men satisfy themselves in such cases, corresponds with that mischievous ingenuity wherewith foolish persons satisfy themselves that a fortune-teller had foretold the truth, that a dream had been fulfilled, a superstition justified, and so forth.

The tendency, at present, amongst those who are desirous of forming a scheme of weather prediction, is to seek the origin of our weather-changes in changes of the sun's condition, and by determining the laws of the solar changes to ascertain the laws which regulate changes in the weather.

It may be remarked, in passing, that this new phase of the inquiry does not reject planetary influences altogether. The theory is entertained by many well-known students of science that changes in the condition of the sun are dependent on the varying positions of the planets; so that if it should be established that our weather-changes are connected with solar changes, we should infer that indirectly the planets in their motions rule the weather on our earth.

I propose now to consider the evidence relating to the sun's influence, and to discuss the question (altogether distinct, be it remarked) whether a means of accurate weather prediction may be obtained if the sun's influence be regarded as demonstrated.

There is one strong point in favor of the new theory, in the fact that the sun is unquestionably the prime cause of all weather changes. To quote the words of Lieut.-Colonel Strange, an enthusiastic advocate of the theory (and eager to have it tested at this country's charge), "there can hardly be a doubt that almost every natural phenomenon connected with climate can be distinctly traced to the sun as the great dominating force, and it is a natural inference" (though not, as he says, an unavoidable one) "that the changes, and what we now call the uncer-

tainties of climate are connected with the constant fluctuations which we know to be perpetually occurring in the sun itself." I may proceed, indeed, in this place, to quote the following words in which Colonel Strange enunciates the theory itself which I am about to discuss, and its consequences:—"The bearing of climatic changes on a vast array of problems connected with navigation, agriculture, and health, need but be mentioned to show the importance of seeking in the sun, where they doubtless reside, for the causes which govern these changes. It is indeed my conviction that of all the fields now open for scientific cultivation, there is not one which, quite apart from its transcendent philosophical interest, promises results of such high utilitarian value, as the exhaustive systematic study of the sun."

It cannot be doubted, I think, that if anything like what is here promised could be hoped for from the study of the sun, it would be a matter of more than national importance to undertake the task indicated by Colonel Strange. The expense of new observatories for this special subject of study would in that case be very fully repaid. It would be worth while to employ the most skilful astronomers at salaries comparable with those which are paid to our Government ministers; it would be well to secure on corresponding terms the advice of those most competent to decide on the instrumental requirements of the case; and in fact the value of the work which is at present accomplished at Greenwich, great though that value is, would sink into utter insignificance, in my judgment, compared with the results flowing in the supposed case from the proposed "exhaustive and systematic study" of the great central luminary of the planetary system.

The subject we are to discuss is manifestly therefore of the utmost importance, and cannot be too carefully dealt with. It would be a misfortune on the one hand to be led by careless reasoning to underestimate the chances in favor of the proposed scheme, while on the other it would be most mischievous to entertain unfounded expectations where the necessary experiments must be of a costly nature, and where science would be grievously discredited should it be proved that the whole scheme was illusory.

We note, first, that besides being "the

great dominating force" to which all natural phenomena connected with climate are due, the sun has special influence on all the most noteworthy *variations* of weather. The seasons are due to solar influence; and here we have an instance of a power of prediction derived from solar study though belonging to a date so remote that we are apt to forget the fact. It seems so obvious that summer will be on the whole warmer than winter, that we overlook the circumstance that at some epoch or other this fact, at least in its relation to the apparent motions of the sun, must have been recognised as a discovery. Men must at one time have learned, or perhaps we should rather say, each race of men must at one time have noticed, that the varying warmth on which the processes of vegetation depend, correspond with the varying diurnal course of the sun. So soon as this was noticed, and so soon as the periodic nature of the sun's varying motions had been ascertained, men had acquired in effect the power of predicting that at particular times or seasons, the weather on the whole would be warmer than at other seasons. In other words, so soon as men had recognised the period we call the *year*, they could predict that one half of each year would be warmer than the other half. Simple as this fact may seem, it is important to notice it as the beginning of weather prediction; for as will presently appear, it has an important bearing on the more complex questions at present involved in the prognostication of weather-changes.

It became manifest almost as soon as this discovery had been made, that the weather of particular days or even of week and longer periods could not, by its means, be predicted. A week in summer may be cold, and a week in winter may be warm; nor, so far as is even yet known, is there a single part of any year the temperature of which can be certainly depended upon, at least within the temperate zone. In certain tropical regions there are tolerably constant weather variations; but so far is this from being the case in the temperate zones of either hemisphere, that it is impossible to affirm certainly, even that during a week or fortnight at any given summer season there will be one hot day, or that during a corresponding period in the winter there will be one day of cold weather.

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It became manifest also, at an early epoch, that terrestrial conditions must be intimately involved in all questions of weather, since the year in different countries in the same latitudes presents different features. Such differences are of two kinds,—those which have a tendency to be constant, and those which are in their nature variable. For example, the annual weather in Canadian regions having the same range of latitude as Great Britain, differs always to a very marked degree, though not always to the same degree, from that which prevails in this country: here then we have a case of a constant difference due unquestionably to terrestrial relations. Again, when we have a hot or dry summer in this country, warm or damp weather may prevail in other countries in the same latitudes, and *vice versa*; differences of this kind are ordinarily* variable, and in the present position of weather science are regarded as accidental.

Hitherto, weather-science has depended solely on the study of these terrestrial effects as they vary under varying conditions. Modern meteorological research is confined to the record and study of the actual condition of the weather from day to day at selected stations in different countries. It cannot be denied that the inquiry has not been attended with success. At vast expense millions of records of heat, rainfall, winds, clouds, barometric pressure, and so on have been secured; but hitherto no law has been recognized in the variations thus recorded,—no law at least from which any constant system of predic-

* I use this qualifying word, because some differences of the kind are more or less regular. Thus, when there is a dry summer in certain regions in the West of Europe, there is commonly a wet summer in easterly regions in the same latitude, and *vice versa*, the difference simply depending on the height at which the clouds travel which are brought by the south-westerly counter-trade winds. When these clouds travel high, they do not give up their moisture until they have travelled far inland or towards the east; when they travel low, their moisture is condensed so soon as they reach the western landslopes. It is not uncommonly the case again, that when we in England have dry summers, much rain falls on the Atlantic, and our drought is simply due to the fall of this rain before the clouds from the south-west have reached us. More commonly, however, drought in England is due to the delay of the downfall, in consequence of the clouds from the south-west travelling at a greater height than usual.

tion for long periods in advance can be deduced.

On this point I shall quote first a remarkable saying of Sir W. Herschel's, which appears to me, like many such sayings of his, to be only too applicable to the present state of science. In endeavoring to interpret the laws of weather, "we are in the position," Herschel remarks, "of a man who hears at intervals a few fragments of a long history related in a prosy, unmethodical manner. A host of circumstances omitted or forgotten, and the want of connection between the parts, prevent the hearer from obtaining possession of the entire history. Were he allowed to interrupt the narrator, and ask him to explain the apparent contradictions, or to clear up doubt's at obscure points, he might hope to arrive at a general view. The questions that we would address to nature, are the very experiments of which we are deprived in the science of meteorology."

The late Professor De Morgan, indeed, selected meteorology as the subject on which, above all others, systematic observations had been most completely wasted,—as a special instance of the failure of the true Baconian method (which be it noticed is not, as is so commonly supposed, the modern scientific method). "There is an attempt at induction going on," says De Morgan, "which has yielded little or no fruit, the observations made in the meteorological observatories. This attempt is carried on in a manner which would have caused Bacon to dance for joy" (query); "for he lived in times when Chancellors did dance. Russia, says M. Biot, is covered by an army of meteorographs, with generals, high officers, subalterns, and privates, with fixed and defined duties of observation. Other countries, also, have their systematic observations. And what has come of it? Nothing, says M. Biot, and nothing will ever come of it: the veteran mathematician and experimental philosopher declares, as does Mr. Ellis" (Bacon's biographer), "that no single branch of science has ever been fruitfully explored in this way." A special interest attaches, I may remark, to the opinion of M. Biot, because it was given upon the proposal of the French government to construct meteorological observatories in Algeria.

It is well known that our Astronomer Royal holds a similar opinion. De Mor-

gan thus quaintly indicates his interpretation of one particular expression of Sir G. Airy's opinion:—"In the report to the Greenwich Board of Visitors, for 1867, the Astronomer Royal, speaking of the increase of meteorological observatories, remarks, 'Whether the effect of this movement will be that millions of useless observations will be added to the millions that already exist, or whether something may be expected to result which will lead to a meteorological theory, I cannot hazard a conjecture.' This is a conjecture, and a very obvious one; if Mr. Airy would have given $2\frac{3}{4}d$, for the chance of a meteorological theory formed by masses of observations, he would never have said what I have quoted."

The simple combination of terrestrial considerations with the effects due to the sun's varying daily path having thus far failed to afford any interpretation of the varying weather from year to year, it is natural to inquire whether the variations in the sun's condition from year to year may not supply the required means of interpreting and hence of predicting weather-changes. We know that the sun's condition does vary, because we sometimes see many large spots upon his surface, whereas at others he has no spots, or few and small ones. We can scarcely doubt that these variations affect the supply of heat and light, as well as of chemical action and possibly of other forms of force; and hence we are certainly dealing with a *vera causa*, though whether this real cause be an efficient cause of weather-changes remains yet to be determined.

It may perhaps be as well to inquire, however, in the first place, whether any peculiarities of weather can be traced to another circumstance which ought to be at least as efficient, one would suppose, as any changes in the sun's action due to the spots. I refer to his varying distance from the earth. It is known doubtless to all my readers that in June and July, although these are our summer months, the sun is farther away than in December,—and this, not by an inconsiderable distance, but by more than three millions of miles. Accordingly, on a summer day in our hemisphere we receive much less heat than is received on a summer day in the southern hemisphere. Or instead of comparing our summer heat with summer heat in the southern hemisphere, we may make

comparison between the quantity of heat received by the whole earth on a day in June and on a day in December. Either way of viewing the matter is instructive; and I believe many of my readers will be surprised when they hear what is the actual amount of difference.

We receive in fact, on June 30th, less heat and light than dwellers at our antipodes receive on December 30th, by the amount which would be lost if an opaque disc having a diameter equal to one-fourth of the sun's,* came upon the sun's face as seen on December 30 at our antipodes. It need hardly be said that no spots whose effects would be comparable with those produced by such a disc of blackness have ever been seen upon the face of the sun. Spots are not black or nearly black, even in their very nucleus. The largest ever seen has not had an extent approaching that of our imagined black disc, even when the whole dimensions of the spot,—nucleus, umbra, and penumbra,—have been taken into account. Moreover, all round a spot there is always a region of increased brightness, making up to a great degree, if not altogether, for the darkness of the spot itself. So that unquestionably the summer heat in the southern hemisphere exceeds the summer heat in our hemisphere to a much more marked degree than the heat given out by the sun when he is without spots exceeds the heat of a spotted sun.

It is, however, rather difficult to ascertain what effect is to be ascribed to this peculiarity. It is certain that the Australian summer differs in several important respects from the European summer; but it is not easy to say how much of the difference is due to the peculiarity we have been considering, and how much to the characteristic distinction between the northern and southern halves of the earth,—the great excess of water surface over land surface in the southern hemisphere.

* It is easily shown that such would be the size of the imagined black disc. For the sun's distance varies from about 93 millions of miles to about 90 millions, or in the proportion of 31 to 30. Hence the size of his disc varies in the proportion of 31 times 31 to 30 times 30, or as 961 to 900. The defect of the latter number 900 amounts to 61, which is about a sixteenth part of the larger number. But a black disc having a diameter equal to a quarter of the sun's would cut off precisely a sixteenth part of his light and heat, which was the fact to be proved.

It is worthy of notice, however, that even in this case, where we cannot doubt that a great difference must exist in the solar action at particular seasons, we find ourselves quite unable to recognise any peculiarities of weather as *certainly* due to this difference.

I have spoken of a second way of viewing the difference in question, by considering it as it affects the whole earth. The result is sufficiently surprising. It has been shown by the researches of Sir J. Herschel and Pouillet, that on the average our earth receives each day a supply of heat competent to heat an ocean 260 yards deep over the whole surface of the earth from the temperature of melting ice to the boiling point. Now, on or about June 30, the supply is one thirtieth greater, while on or about December 30, the supply is one thirtieth less. Accordingly, on June 30, the heat received in a single day would be competent only to raise an ocean 251½ yards deep from the freezing to the boiling point, whereas on December 30 the heat received from the sun would so heat an ocean 268½ yards deep. The mere excess of heat, therefore, on December 30, as compared with June 30, would suffice to raise an ocean more than 17 yards deep and covering the whole earth, from the freezing point to the temperature of boiling water! It will not be regarded as surprising if terrestrial effects of some importance should follow from so noteworthy an excess, not merely of light and heat, but of gravitating force, of magnetic influence, and of actinic or chemical action, exerted upon the earth as a whole. Accordingly we find that there is a recognisable increase in the activity of the earth's magnetism in December and January as compared with June and July. But assuredly the effect produced is not of such a character as to suggest that we should find the means of predicting weather *if* it were possible for us *now* to discover any solar law of change resulting in a corresponding variation of solar action upon the earth.

This leads us to consider the first great law of solar change as distinguished from systematic variations like the sun's varying change of distance and his varying daily path on the heavens. This law is that which regulates the increase and decrease of the solar spots within a period of about eleven years. The sun's condition does

not, indeed, admit of being certainly predicted by this law, since it not unfrequently happens that the sun shows few spots for several weeks together, in the very height of the time of spot-frequency, while on the other hand it often happens that many and large spots are seen at other times. Nevertheless, this general law holds, that, on the whole, and taking one month with another, there is a variation in spot-frequency, having for its period an interval of rather more than eleven years.

Now, the difference between a year of maximum spot-frequency, and one of minimum frequency, is very noteworthy, notwithstanding the exceptional features just mentioned, which show themselves but for short periods. This will be manifest on the consideration of a few typical instances. Thus, in the year 1837, the sun was observed on 168 days, during which he was not once seen without spots, while no less than 333 new groups made their appearance. This was a year of maximum spot-frequency. In 1843, the sun was observed on 312 days, and on no less than 149 of these no spots could be seen, while only 34 new groups made their appearance. This was a year of minimum spot-frequency. Passing to the next maximum year, we find that in 1848 the sun was observed on 278 days, during which he was never seen without spots, while 330 new spots made their appearance. In 1855 and 1856 together, he was observed on 634 days, on 239 of which he was without spots, while only 62 new groups made their appearance. The next maximum was not so marked as usual, that is, there was not so definite a summit, if one may so speak, to the wave of increase; but the excess of spot-frequency was none the less decided. Thus, in the four years, 1858, '59, '60, '61, the sun was observed on 335, 343, 333, and 322 days, *on not one of which he was spotless*, while the numbers of new groups for these four years were respectively, 202, 205, 211, and 204. The minimum in 1867 was very marked, as 195 days out of 312 were without spots, and only 25 new groups appeared. The increase after 1867 was unusually rapid, since in 1869 there were no spotless days, and 224 new groups were seen, though the sun was only observed on 196 days. The number of spots in 1870, 1871, and 1872, as well as their magnitude and duration, have been above what

is usual, even at the period of maximum spot-frequency.

From all this it will be manifest that we have a well-marked peculiarity to deal with, though not one of perfect uniformity. Next to the systematic changes already considered, this alternate waxing and waning of spot-frequency might be expected to be efficient in producing recognisable weather changes. Assuredly, if this should not appear to be the case, we should have to dismiss all idea that the sun-spots are weather-rulers.

Now, from the first discovery of spots, it was recognised that they must, in all probability, affect our weather to some degree. It was noticed, indeed, that our auroras seemed to be in some way influenced by the condition of the sun's surface, since they were observed to be more numerous when there are many spots than when there are few or none. Singularly enough, the effect of the spots on temperature was not only inquired into much later (for we owe to Cassini and Mairan the observation relating to auroras), but was expected to be of an opposite character from that which is in reality produced. Sir W. Herschel formed the opinion that when there are most spots the sun gives out most heat, notwithstanding the diminution of light where the spots are. He sought for evidence on this point in the price of corn in England, and it actually appeared, though by a mere coincidence, that corn had been cheapest in years of spot-frequency, a result regarded by Herschel as implying that the weather had been warmer on the whole in those years. It was well pointed out, however, by Arago, that "in these matters we must be careful how we generalise facts before we have a very considerable number of observations at our disposal." The peculiarities of weather in a single and not extensive country like England, are quite insufficient to supply an answer to the wide question dealt with by Herschel. The weather statistics of many countries must be considered and compared. Moreover, very long periods of time must be dealt with.*

* When Herschel made his researches into this subject, the law of spot-frequency had not been discovered. He would probably have found in this law, as some have since done, the explanation of the seven years of plenty and the seven years of famine typified by the fat kine and lean

M. Gautier, of Geneva, and later MM. Arago and Barratt made a series of researches into the tabulated temperature at several stations, and for many successive years. They arrived at the conclusion that, on the whole, the weather is coolest in years of spot-frequency.

But recently the matter has been more closely scrutinised, and it has been found that the effects due to the great solar spot period, although recognisable, are by no means so obvious as had been anticipated.

These effects may be divided into three classes,—those affecting (1) temperature, (2) rainfall, and (3) terrestrial magnetism.

As respects the first, it has been discovered that when *underground* temperatures are examined, so that local and temporary causes of change are eliminated, there is a recognisable diminution of temperature in years when spots are most frequent. We owe this discovery to Professor C. P. Smyth, Astronomer Royal for Scotland. The effect is very slight; indeed, barely recognisable. I have before me, as I write, Professor Smyth's chart of the quarterly temperatures from 1837 to 1869, at depths of 3, 6, 12, and 24 French feet. Of course, the most remarkable feature even at the depth of 24 feet, is the alternate rise and fall with the seasons. But it is seen that while the range of rise and fall remains very nearly constant, the crests and troughs of the waves lie at varying levels. After long and careful scrutiny, I find myself compelled to admit that I cannot find the slightest evidence in *this* chart of a connection between underground temperatures and the eleven years period of sun spots. I turn, therefore, to the chart in which the annual means are given; and noting in the means at the

lesser depths "confusion worse confounded" (this, of course, is no fault of Professor Smyth's, who here merely records what had actually taken place), I take the temperatures at a depth of 24 French feet. Now, neglecting minor features, I find the waves of temperature thus arranged. They go down to a little more than $46\frac{1}{2}$ degrees of the common thermometer in 1839-40; rise to about $47\frac{1}{2}$ degrees in 1847; sink to $47\frac{1}{2}$ degrees in 1849; mount nearly to $47\frac{1}{2}$ degrees again in 1852-53; are at 47 degrees in 1856-57; are nearly at 48 degrees in 1858-59; then they touch 47 degrees three times (with short periods of rising between), in 1860, 1864, and 1867; and rise above $47\frac{1}{2}$ degrees in 1869. Now if we remember that there were maxima of spots in 1837, 1848, 1859-60, and 1870, while there were minima in 1843, and 1855-56, I think it will be found to require a somewhat lively imagination to recognise a very striking association between the underground temperature and the sun's condition with respect to spots. If many spots imply diminution of heat, how does it come that the temperature rises to a maximum in 1859, and again in 1869? if the reverse, how is it that there is a minimum in 1860? I turn, lastly, to the chart in which the sun-spot waves and the temperature waves are brought into actual comparison, and I find myself utterly unable to recognise the slightest association between them. Nevertheless, I would not urge this with the desire of in any way throwing doubt upon the opinion to which Professor Smyth has been led, knowing well that the long and careful examination he has given to this subject in all its details, may have afforded ample though not obvious evidence for the conclusions at which he has arrived. I note also, that, as he points out, Mr. Stone, director of the Cape Town Observatory, and Mr. Cleveland Abbe, director of the Cincinnati Observatory, have since, "but it is believed quite independently, published similar deductions touching the earth's temperature in reference to sun-spots." All I would remark is, that the effect is very slight and very far from being obvious at a first inspection.

Next as to rainfall and wind.

Here, again, we have results which can hardly be regarded as striking, except in the forcible evidence they convey of the insignificance of the effects which are to

kind of Joseph's dream. For if there was a period of eleven years in which corn and other produce of the ground waxed and waned in productiveness, it would be not at all unlikely that whenever this waxing and waning chanced to be unusually marked, there would result two series of poor and rich years apparently ranging over fourteen instead of eleven years. We have seen, above, that the waves of spot-waxing and spot-waning are not all alike in shape and extent. Whenever then a wave more marked than usual came, we should expect to find it borrowing, so to speak, both in trough and crest, from the waves on either side. It would require but a year or so either way to make the wave range over fourteen years; and observed facts even during the last half-century only, show this to be no unlikely event.

be imputed to the great eleven-year spot period. We owe to Mr. Baxendell, of Manchester, the most complete series of investigations into this subject. He finds that at Oxford, during the years when sun-spots were most numerous, the amount of rainfall under west and south-west winds was greater than the amount under south and south-east winds; while the reverse was the case in years when spots were few and small. Applying corresponding processes to the meteorological records for St. Petersburg, he finds that a contrary state of things prevailed there. Next we have the evidence of the Rev. R. Main, director of the Radcliffe Observatory at Oxford, who finds that westerly winds are slightly more common when sun-spots are numerous than at other times. And lastly, Mr. Meldrum, of Mauritius, notes that years of spot-frequency are characterized on the whole by a greater number of storms and hurricanes, than years when the sun shows few spots.

The association between the sun-spot period and terrestrial magnetism is of a far more marked character, though I must premise that the Astronomer Royal, after careful analysis of the Greenwich magnetic records, denies the existence of any such association whatever. There is, however, a balance of evidence in its favor. It seems very nearly demonstrated that the daily sway of the magnetic needle is greatest when sun-spots are numerous, that magnetic storms are somewhat more numerous at such times, and that auroras also are more commonly seen. Now it has been almost demonstrated by M. Marié Davy, chief of the meteorological division in the Paris Observatory, that the weather is affected in a general way by magnetic disturbances. So that we are confirmed in the opinion that indirectly, if not directly, the weather is affected to some slight degree by the great sun-spot period.

Still I must point out that not one of these cases of agreement has anything like the evidence in its favor which had been found for an association between the varying distance of Jupiter and the sun-spot changes. For eight consecutive maxima and minima this association has been strongly marked, and might be viewed as demonstrated,—only it chanced unfortunately that for two other cases the relation is *precisely reversed*; and in point

of fact, whereas the period now assigned to the great sun-spot wave is eleven years and rather less than *one* month, Jupiter's period of revolution is eleven years and about *ten* months, a discrepancy of nine months, which would amount up to five and a half years (or modify perfect agreement into perfect disagreement) in seven or eight cycles.

But accepting the association between weather and the sun-spot changes as demonstrated (which is granting a great deal to the believers in solar weather-prediction), have we any reason to believe that by a long-continued study of the sun the great problem of foretelling the weather can be solved? This question, as I have already pointed out, must not be hastily answered. It is one of national, nay, of cosmopolitan importance. If answered in the affirmative, there is scarcely any expense which would be too great for the work suggested; but all the more careful must we be not to answer it in the affirmative, if the true answer should be negative.

But it appears to me that so soon as the considerations dealt with above have been fairly taken into account, there can be no possible doubt or difficulty in replying to the question. The matter has in effect, though not in intention, been tested experimentally, and the experiments, when carried out under the most favorable conditions, have altogether failed. To show that this is so, I take the position of affairs before Schwabe began that fine series of observations which ended in the discovery of the great spot-period of eleven years. Let us suppose that at that time the question had been mooted whether it might not be possible, by a careful study of the sun, to obtain some means of predicting the weather. The argument would then have run as follows:—"The sun is the great source of light and heat; that orb is liable to changes which must in all probability affect the supply of light and heat; those changes may be periodical and so predictable; and as our weather must to some extent depend on the supply of light and heat, we may thus find a means of predicting weather changes." The inquiry might then have been undertaken, and undoubtedly the great spot-period would have been detected, and with this discovery would have come that partial power of predicting the sun's condition which we now possess,

—that is, the power of saying that in such and such a year, taken as a whole, spots will be numerous or the reverse. Moreover, meteorological observations conducted simultaneously would have shown that, as the original argument supposed, the quantity of heat supplied by the sun varies to a slight degree with the varying condition of the sun. Corresponding magnetic changes would be detected; and also those partial indications of a connection between phenomena of wind and rain and the sun's condition which have been indicated above. All this would be exceedingly interesting to men of science. *But*,—supposing all this had been obtained at the nation's expense, and the promise had been held out that the means of predicting weather would be the reward, the non-scientific tax-paying community might not improbably inquire what was the worth of these discoveries to the nation or to the world at large. Be it understood that I am not here using the *cui bono* argument. As a student of science, I utterly repudiate the notion that before scientific researches are undertaken, it must be shown that they will *pay*. But it is one thing to adopt this mean and contemptible view of scientific research, and quite another to countenance projects which are based *ab initio* upon the ground that they will more than repay their cost. Now, I think, if the nation made the inquiry above indicated, and under the circumstances mentioned, it would be very difficult to give a satisfactory reply. The tax-payers would say, "We have supplied so many thousands of pounds to found national observatories for the cultivation of the physics of science, and we have paid so many thousands of pounds yearly to the various students of science who have kindly given their services in the management of these observatories; let us hear what are the utilitarian results of all this outlay? We do not want to hear of scientific discoveries, but of the promised means of predicting the weather." The answer would be, "We have found that storms in the tropics are rather more numerous in some years than others, the variations having a period of eleven years; we can assert pretty confidently that auroras follow a similar law of frequency; south-west winds blow more commonly at Oxford, but less commonly elsewhere, when the sun-spots, following the eleven-

year period, are at a maximum; and more rain falls with south-westerly winds than with south-easterly winds at Oxford and elsewhere, but less at St. Petersburg and elsewhere, when sun-spots are most numerous, while the reverse holds when the spots are rare." I incline to think that on being further informed that these results related to averages only, and gave no means of predicting the weather for any given day, week, or month, even as respects the unimportant points here indicated, the British tax-payer would infer that he had thrown away his money. I imagine that the army of observers who had gathered these notable results would be disbanded rather unceremoniously, and that for some considerable time science (as connected, at any rate, with promised "utilitarian" results) would stink in the nostrils of the nation.

But this is very far, indeed, from being all. Nay, we may almost say that this is nothing. Astronomers *know* the great spot period; they have even ascertained the existence of longer and shorter periods less marked in character; and they have ascertained the laws according to which other solar features besides the spots vary in their nature. It is certain that whatever remains to be discovered must be of a vastly less marked character. If then the discovery of the most striking law of solar change has led to no results having the slightest value in connection with the problem of weather-prediction, if periodic solar changes of a less marked character have been detected which have no recognisable bearing on weather changes, what can be hoped from the recognition of solar changes still more recondite in their nature? It is incredible that the complex phenomena involved in meteorological relations regarded as a whole, those phenomena which are but just discernibly affected by the great sun-spot period, should respond to changes altogether insignificant even when compared with the development and decay of a single small sun-spot. It appears to me, therefore, that it is the duty of the true lover of science to indicate the futility of the promises which have been mistakenly held out; for it cannot be to the credit of science, or ultimately to its advantage, if government assistance be obtained on false pretences for any branch of scientific research.—*St. Paul's Magazine*.

A RUN TO VIENNA AND PESTH.

IT WAS on the 30th of April, the day before the World's Exhibition opened, that I reached Vienna. When I left Scotland sixty-six hours before, the sun was bright and warm, and everything promised spring. Vienna is eight degrees of latitude, or 550 miles south of my northern home, not to speak of the twenty degrees of east longitude—and it was a bitter disappointment to find that I had left all the brightness and warmth behind me. It was raw in London; it was gusty and uncomfortable about Dover and Ostend; it was raining as the train crawled, an hour and a half late, into the capital of the Eastern Empire. Their own familiar May, laden with influenza, was in readiness, a truly delightful surprise for the English visitors. It neither surprised nor shocked the Viennese. Vienna is very cold when it is cold, and very hot when it is hot. It rains a great deal there, it snows a little, it blows bitterly at times. To-day the sun makes the place as hot as an Italian market-place in a blazing summer. To-morrow the winds that sweep down the long trough of the Danube, or through the gaps of the encircling hills, chill one to the bone. People say that a fall of 30° Fahrenheit in the course of a day is not uncommon, and chest complaints are dangerous and abundant. Everybody who goes to see the World's Exhibition should prepare for heat and cold, and dust and rain, and mud, and, above all, sudden and violent changes of temperature.

The first of May, the morning big with the fate of Baron von Schwartz Senborn and the Austrian Empire, was as depressing as it well could be. From low thick clouds a sleety drizzle dripped on the innumerable strangers who were supposed to have been gathered from all ends of the earth to witness the opening at the low charge of fifty shillings a-piece. From the Stephan's Platz, which is an apology for a square in the centre of the city, and as like a square as St. Paul's Churchyard, an interminable line of omnibuses and carriages streamed outwards over the three miles which lay between it and the Exhibition gates. Early people started at eight; those who were not to be hurried, at nine; those who were always too late for everything thought ten time enough to

enable them to get to the gates at eleven. At eleven the programme said that every entrance was to be closed; the interval till noon, when the Emperor and his Imperial and Royal guests were to open the Exhibition, being sacred to the admission of officials and the great people who were not to be jostled among the meaner crowd. The programme broke down, as it was no doubt meant it should; for when eleven came, a mile or two of carriages in continuous lines still stretched on the wrong side of the gates. The envious weather deprived the Viennese of more than half the pleasures of this great People's Exhibition on the road to the real show. The open carriages were very few, and the toilettes in them were very much subdued. Broughams are disappointing to the most contented crowd, and even the hundreds of thousands who lined the road two, three, and four deep, on both sides of it, as we got into the Prater and neared the gates, would have found time hang heavy on their hands on that raw, drizzly morning but for the uniforms of all nations which went flashing past incessantly. There was the most wonderful variety and richness of costume. The Hungarian noble on a State occasion is a sight to which the imagination of untravelled Western Europe is scarcely equal, and the crowd supped full of ambassadors, and archdukes, and Hospodars, and Hungarians, and Pashas, and full-dress generals and admirals of all the armies and navies of Europe. At the end of all this there was the Emperor and Empress, and half Princes Royal and Princes Imperial, and it was content to wait.

Everybody now knows the plan of the Exhibition. There is a cupola bigger than the dome of St. Paul's, under which is the great central space called the Rotunda. In the middle of this the framework of the magnificent fountain, which is to diffuse fragrance and refreshing coolness through the sultry summer, was covered, on the opening day, with evergreens. A great central space, like the saw-dust of a circus, separated it from the crowds of spectators, whose seats were in rows slanting to the inner line of pillars. Between them and the outer wall was a huge belt of floor space, meant for the crowds who could not find

sitting-room. Unfortunately there were no crowds, for miles of carriages contain, after all, but a limited number of human beings, and the first fifty-shilling day appealed but feebly to the masses. It promised nothing but the presence of Emperors and Princes, and the undeniable fact that it was the first. Of course there was a little music, and the great rotunda—the work, by the bye, of our able countryman, Mr. John Scott Russell—showed for the first time how admirably it is adapted for musical purposes when filled with people. But, after all, music, and emperors, and the fine dresses of fashionable people, are not irresistible attractions, and I should guess that the spectators who occupied the rotunda were somewhere between ten and twenty thousand.

Of course there was a little excitement when the great people entered. Before us were a dozen of the most exalted ladies and gentlemen of Europe advancing to take their seats on the raised dais in front of what looked like an organ. The music led, and the great company joined in the "*Gott erhalt' den Kaiser Franz*," and twenty minutes of mutual speeches, broken by intervals of music, followed. Not a word could be heard, and there was nothing to occupy us but admiration of the vast proportions of the huge rotunda, from the top of which workmen and the special correspondents, watching us from the gallery at the base of the dome, looked like distant crows. Half-a-dozen objects in the rotunda were forecasts of the great collection of the more striking and showy "exhibits" of all nations which is now gathered there. There was a huge hexagonal tent bedstead by Bossi. There were two gigantic and noble female figures from Switzerland, to represent the federal friendship of the united cantons. There were a couple of monstrous lions, which from the opposite side of the hall, where I stood, looked little larger than young Newfoundlands; and there was an enormous stearine bust of Milly, the great introducer of stearine soaps and candles into Germany. Milly was alone and pre-eminent, as Goethe, or Dante, or Shakespeare might have stood to claim the reverence of the assembled nations. The exhibition, as I found out afterwards, is full of stearine statues and wax-candle trophies and soap *virtù*; and, except for the shining sort of glaze, upon them, they look as white and

nearly as pure as marble. But Milly on the great opening day, in the centre of everything, under the admiring eyes of an Emperor and Empress and nearly a dozen Crown Princes and Crown Princesses, had reached a place quite too pre-eminent even for his saponaceous merits.

When the speeches were over, the great people began their "Rundreise." They were received everywhere by the Commissioners of the different countries, and for an hour or more the crowd in the rotunda sat still or gossiped, or sought for new places from which they could have a better chance of seeing their Majesties on their return. When they came back the Exhibition was open, and we might go everywhere. A little went a long way. There were many curious things, but the most curious of all, as I found out in the next day or two, was the skill with which the chaos of packing-cases and the innumerable sheds full of mere confusion that were everywhere, had been hid away. Nearly every nation was unready. Switzerland and Belgium were farthest forward. Next came England, then Germany, then Austria, then France. America had literally nothing but a curious charcoal wall-painting, some 40 feet long by 10 feet high, representing the eventful history of the unsuspecting Pig of Cincinnati, who is seduced into an establishment from which in a few brief hours he emerges as sausage and flitch of bacon. Perhaps an eighth part of the things meant to be shown were visible on the opening day. Everything is no doubt ready now, and before I left I was willing to allow that nothing yet seen in Exhibitions was to be compared with the Great World's Show in the capital which offers itself as the natural meeting of East and West.

A simple illustration may give some idea of the size of the building. Take a penny to represent the rotunda, and run out four quarter-inch spokes from it, through the ends of which, enclosing the penny, draw a square. The spokes and the sides of the square are galleries, given up half to Austria and half to Germany, and the side of the square is some 600 feet. The western spoke, the western side of the square and half of the two transverse ones, belong to Germany, and those opposite to Austria. Continue the western and eastern spoke across the square for 1,000 feet each way—as far as three

pennies would go—and we have the long galleries which form the backbone of the Exhibition building for western and eastern countries. Across each of these backbones run fourteen ribs, seven on each side—the line across being some 600 feet: make these ribs also exhibiting galleries, and you have the chief building. The intercostal places are fitted with supplementary sheds when these are needed. If they were all so fitted, the centre building of the Exhibition would be half a mile long by half a quarter mile broad—with Germany and Austria in the centre, the United States at one end, and Japan and China at the other. The advantages and disadvantages are alike obvious. All the products of each country pass under review, but each is by itself, and you forget the details of the one before you get to the other. Anybody who wants, for instance, to compare the cottons of Switzerland and France and Austria and America must walk huge distances from country to country.

But there are three or four devices to mitigate this hardship. To begin with, much of the machinery can only be seen and judged when it is running, and the machinery of all nations has been sent off accordingly into one great supplemental shed behind the main building, and parallel to it, where "power" can be turned on. The engineer and machinist may find a good deal belonging to him in the Industry Palace, but he will give days or weeks to the Machinery hall. Between it and the main Exhibition there is a show of what one may perhaps call dead machinery—steam ploughs, and threshing machines, and all the infinite contrivances which have made agriculture a scientific profession. The agricultural sheds are two in number—an eastern for Austria, Russia, and Hungary; and a western for France, Belgium, Germany, Great Britain, and America. The space between them and that between them and the Exhibition, is filled up with smaller collections. There are heaps of peasants' and farmers' houses of all countries. There are gatherings of all the products of their estates by noblemen with thousands of square miles of territory. There is the show of the Austrian University of Agriculture, which presents us with the ploughs of all nations for the last 100 years, and illustrates all the agricultural products of Austria and Hun-

gary. These are but samples taken at random of the curiosities outside in the grounds.

Besides the engineers and the farmers, there is one other competition of all nations which a visitor may witness without travelling round the Exhibition world. The pictures and statuary are grouped in a separate building, near the Japanese and Turkish portions of the Industry Palace. Each country exhibits by itself, but it is possible to run rapidly through them all, as there is nothing but art to distract the attention. It is wonderfully well worth while: I have no desire to offer you my flying impressions of the artistic qualities of the great national schools. I had only three days to see them in, for the Emperor only opened the Art Exhibition on the 15th, and even then France had but one of five rooms ready, and Germany had none. Great Britain, Belgium, Holland, Switzerland, Austria, were fairly ready, and Italy as yet showed only half of what she intended to display.

It is this universal Internationalism, so to speak, that gives its individual character to the Vienna Exhibition. In London and Paris all the world was nominally represented, but Eastern Europe was too far removed from either to make its presence felt. Vienna is the geographical capital of the whole of the Old World that is civilized. Of the 56,000 square metres in the main building, 18,000 are given to Austria and Hungary, and 19,000, or nearly the same, to Germany, France, Great Britain, and Ireland, the great commercial countries of the Old World and those chiefly represented at London and in Paris. Russia is a little disappointing, for it occupies only 3,300 square metres, which is scarcely more than Hungary or Turkey. Taking the floor space, Austria has two and a half times as much as Great Britain; Germany and France have each the same as we have; Russia, Hungary, and Turkey, each half as much; Italy and Belgium, one-third as much each; China, Siam, and Japan, one-fifth as much, which is nearly the space assigned to the United States, to South America, to Switzerland and to Egypt and Mid-Africa. Holland, Greece, and the Scandinavian Peninsula have each about an eighth of what we have; Roumania, Spain, and Portugal, each about a tenth; Persia and Mid-Asia and Tunis and Morocco, each a twentieth.

In the Vienna Exhibition, in fact, one realizes the East as it is almost impossible to realize it elsewhere. Even in the city of Vienna there is a certain Eastern odor faintly perceptible, but it is very faint. There are very few Hungarian or Slavonic names in the streets, and hardly any Hungarian or Slavonic faces. Of course one meets a Turk or two, and "Magyar spoken here" is as common as "Ici on parle Français" in London, but Vienna is a thoroughly German city. It is brisker and sprightlier than Berlin, but a German is as much at home in it as anywhere in Germany, and everybody else is as much abroad. Pass the gates of the Exhibition, and all this is altered. The great palace of the Viceroy of Egypt, with the towers prepared for the 300 white figures that are to be brought over to remind him of Cairo, during his stay here, is one of the most prominent objects. The Japanese Tea Garden and the colony of Turkish houses cluster in the immediate neighborhood. Swedish hunting lodges, and Portuguese schools, and Hungarian and Styrian wine-houses, and Indian wigwams, where genuine negro waiters compound Catawba cobbles and mint juleps; and Swiss conditoreis, where coffee and fruit-sweetmeats are dispensed by girls gorgeous in gold and linen and bright colors from all the countries,—enable one to survey mankind from China to Peru. Persians and Turks and Japanese are frequent in the grounds, and all nations are abundant in the long sheds and galleries. Oddly enough, everybody seems to find the most interesting things to be those from home. It is in the British Exhibition that Englishmen most abound, and Russians haunt the region of iron and coal and malachite tables and furs and bear-skins.

One of the most striking things about Vienna is the enormous number of new and magnificent buildings that are being run up everywhere. The old Kaiser-stadt had some 70,000 inhabitants shut up close within the iron circle of the famous fortifications. But Sadowa proved that now-a-days capitals are lost and won upon the battle-field; and the Emperor decided upon sweeping them away and replacing them by a broad ring of open boulevards connecting city and suburb, as the old walls had divided them. A huge street, four or five miles long, worthy of the capital of Eastern Europe, sprang up as if by

magic. Long lines of stately palaces, five and six storeys high, unrolled themselves when fashion and luxury trooped to the new Rings. New building societies sprang up like mushrooms, as the earliest realized fortunes, and the banks vied with each other in giving them facilities. The circle of the Rings is not yet completed; and the great crisis which shook the fabric of Austrian credit to its foundations, and in a single month lowered the value of the Austrian securities dealt in on the Vienna Stock Exchange by fifty millions sterling, must have ruined crowds of the building speculators who had calculated on the unlimited expansion of the city and its luxury. In the beginning of May the whole place seemed undergoing a gigantic transformation. Huge half-finished buildings everywhere swarmed with armies of laborers, and carpenters and bricklayers buzzed about them like so many uneasy-going ants. *Mutatis mutandis*—Vienna for Drury Lane, and Bohemian for Irish—it was the scene in the "Rejected Addresses" over again:—

" Ropes rose and sank, and rose again,
And nimble workmen trod;
To realize bold Wyatt's plan
Rush'd many a howling Irishman,
Loud clatter'd many a porter can,
And many a ragamuffin clan,
With trowel and with hod."

Three quarters of the boulevards were filled up with bran-new palaces, and the other quarter with palaces still in the hands of the builder. It was very much the same in most of the suburbs. The sense of transformation under one's very eyes—the visible growth from an old-fashioned fortress town to a great capital open alike to friends and foes—explained the fever of the streets, the breakneck pace of the drivers, and the sense of activity everywhere around you. But you need not go far a-field to see the countries of the years before Sadowa. Enter the town from some village in the outskirts—say Hetzendorf, for instance, and you will find roads so uneven that you could bury a sheep in their deep holes, bearing the traffic of a wide and fertile country district to the very gates of one of the greatest capitals of Europe. Nowhere are the old and the new in sharper contrast than in Austria. Vienna is the incarnation of the feverish energy and vivacity of the new. The villages about her, and for that

matter the outdoor laborers in the city itself, enable one to understand the old.

After a few days the Exhibition tired me, for mountains of packing-cases were arriving every day from the railway stations, where they had been blocked for months. After the exhibition there is little to fall back upon but the Opera, the concerts, and the theatre. The picture galleries seemed to me comparatively uninteresting; and after spending a few evenings in admiring the perfect training of orchestra and chorus, the beauty of the scenic effects, and the general level excellence of the acting at the Opera, I made the excursion which most visitors to Vienna will be tempted to make this season, and ran down the Danube to Pesth. Shakespeare, by the way, is in great favor in Vienna. I saw "Romeo and Juliet" admirably performed by a better general company, and one which showed a truer appreciation of this author, than I remembered to have seen at home; and Nikolai's version of the "Merry Wives of Windsor" was performed one evening at the Opera. Frau Fluth and Frau Reich—Mrs. Ford and Mrs. Page—were admirable; and Sir John was, out of sight, the best Sir John I have happened to come across. No doubt he is the difficulty of the opera, and the farcicalness of the part needs to be exaggerated a little to adapt it to the altered conditions. But the brisk and sparkling dialogue of the "Merry Wives," and the love passages of Master Fenton, suit opera admirably; and the ballet of the fairies who pinch the fat knight in the wood, makes a magnificent spectacular close.

The way to Pesth and back recommended by the guide-books and sanctioned by common sense, is to go down the Danube in the steamer, which takes thirteen hours, and come back by train, which takes seven. The current, which runs nearly five miles an hour at Vienna, and three miles an hour at Pesth, makes up-stream sailing slow and weary work, and the voyage takes twice as long as the voyage down. It is something even to have seen the great river of Central Europe. I had stood before on the naked tableland in the Black Forest, between Furtwangen and Donaueschingen, from which the waters divide, flowing westward to the Rhine and the German Ocean, and eastward to the Black Sea. Years ago I had seen the Danube rush, fierce, deep, and narrow, past the quaint old towers and

the quainter old cathedral of Ulm. On the road to Vienna I had caught casual glimpses of it in the distance, and the city itself is on a branch of the river. But it is only the Regulirte Donau, a bit of the Danube turned into a Vienna canal. We embarked on the Regulated Danube at half-past six, and half-an-hour later were transferred to the bigger boat that was to take us all the way. It was a miserable morning of low grey clouds and sullen streaming rain, without promise or hope. For hours and hours there was nothing to interest but the swift-rushing river beneath, tearing onward like a mill-race to the sea. The "schöne blaue Donau" between Vienna and Pesth is a turbid, clay-colored torrent, that bends and swirls away through interminable flat plains, fringed by osier beds, and apparently empty of population. Every now and then it breaks up into two or three channels, and encloses some long flat island like Lobau, where Napoleon and 180,000 of the best soldiers in Europe were imprisoned for six weeks, after the checks of Aspern and Essling, only to burst out on their Austrian keepers the night before the decisive victory of Wagram. A few wretched villages—one that was "taken by Attila"—a stray farm or two in the far distance, a cart drawn by four oxen, a colony of water-mills, alone interrupt the monotony. These Danube water-mills are odd-looking institutions. In those great plains wind is an unreliable "power," which lies idle for weeks or months, and when it comes often comes in hurricanes. Except the Danube and its tributaries there is little water, and the farmers drive their grain from long distances across the roadless plains to these primitive grinding shops. Two broad flat-bottomed boats are moored together, and on the one nearest the stream a house is constructed for the miller. As the current is strongest near the middle of the river, he anchors his house, and his mill, which is built on the second boat, as near the centre as he can, to be out of the highway of the steamers and other craft. His mill is simple. A trunk of a tree seems to be the axle, and transverse boards, containing the spokes of the water-wheel, splash round and receive in succession the blows of the current. Half-a-dozen, or sometimes a dozen of these curiosities may be moored one behind the other, a little village of amphibious animals.

The river sweeps through a gap of some-

thing like highlands, past the morass or marsh, and into Hungary. But for long it is the same monotonous story—the great river rushing seaward through osier beds and wide fields of cattle country—the water-mills, with their appended millers' houses, dropping lazily in the stream—the grey clouds slowly rising and the rain gradually softening into a dismal drizzle, and hardly anything but the boat in which we were visible in the dead-alive landscape. Our boat itself is only half-interesting. Its steerage is filled with a motley crew of country people, of unknown nationalities, talking languages equally unknown. Apparently there are a few Turks, and a considerable number of Danubian principality people, but the bulk of the passengers, to guess from the frogged and braided coats and jack boots, was Hungarian. The cabin has sleeping-births for some forty people below, and a deck-house is built above them, on the top of which is our fine-weather promenade, while inside it some kind of meal, some coffee, or a little bottle of wine, or a second breakfast, is always going on. In the corner three black and dirty-looking Danubian commercial travellers are playing "beggar my neighbor" with ferocious rapidity and under great excitement. They were at it without moving for three hours at least, and one could not help admiring the resources of the human mind which has discovered and can enjoy such a refuge from *ennui*.

About 1 o'clock we reached Komorn, the great fortress of Hungary, from which it defied the Austrians in 1848, and which is now, it is supposed, one of the strongest in the world. It lies where the Waag, one of her largest tributaries, joins the Danube. There is a little, flat, dreary town, with a desolate steeple or two. The inhabitants are, it seems, chiefly Calvinists. There are few signs of life, but the plain on both sides of both rivers is broken here and there by innumerable low mounds, with ditches before them, which give the low, sullen, wicked look of a modern fortress. For the most part a great *Festung* is as ugly as a huge ironclad. It is not the old rugged hill crowned with a grey castle frowning on the country below it, that strikes terror into the heart of an invader—it is the bit of open country sown with forts, within the lines of which an army may shelter, and which is all but indistinguishable from the monotonous land-

scape. It is thus that the fortifications of Verona keep watch on the Adige, where it bends away from the Alpine valley into the broad plains of Lombardy; and Komorn sits silent and almost unnoticed at the confluence of the Danube and the Waag. One might have scarcely observed the fortifications, but for the trumpeter who came out of the last of them as we swept past it, as suddenly as the little man who emerges from a Black Forest clock, and who blew a gay little blast, most likely to gather the scattered warriors to their mid-day meal. We took it kindly. Perhaps he was inviting us, as the fortress is supposed to do, with a "kommen Morgen"—come here to-morrow—for there is no use trying to get in to-day. As the day wore on the clouds drew back and the sun began to show. Our imprisoned fellow-passengers came crawling out to the upper deck, like so many flies awakened from their winter slumbers by the genial warmth. The river grew more interesting. Hills began to appear far to the right, and farms and villages could occasionally be seen. The hills crept closer and closer to the river, till at a turning the cathedral and ruined fortress of Gran burst upon us. The curtain of the hills of the Bakonyer Wald sweeps down to the river, and our passage seems barred by the cathedral, which stands on a lofty mound jutting into the river. The Hungarians think it the fac-simile of St. Peter's at Rome. It has a cupola like St. Peter's, and pillars with a frieze and statues above it, as in that famous model. But, what the Hungarian St. Peter's lacks in size and perhaps in dignity, it makes up in the picturesqueness of its situation, for it would be difficult anywhere to find a nobler site. Certainly, the cathedral of the old ecclesiastical city which was made a bishopric by King Stephen in 1001, is as much superior to the mites of squalid little village churches which blinked at us from time to time from the banks of the Danube, as St. Peter's is to the great churches of the Italian towns. There is something indeed Italian about the whole scene. A splendid sweep of vine and wood-clad hills to right and left lies under the sullen and threatening light of a thunder-laden afternoon; side valleys cut down through it to the plain which fringes the river brink in torrents of foliage; when the eye catches the naked rock between the vine-rows, it

looks blood-red as everything in Italy looks to one fresh from the sober color of the Alps. As we sweep past the sacred city of Hungary, the river narrows—the hills gather upon either side, and the Danube runs for an hour or two in a gorge like that which holds the Rhine between Andernach and Bingen. From Gran to Wissegrand, the “high fortress” where the kings of Hungary lived in the eleventh century, and on to Wartzen, where the river, which has been struggling eastward, suddenly gives it up and tumbles away from the hills straight to the south,—the Danube is finer, to my thinking, than the Rhine. The vines do not look so much like potato rows; the enclosing hills are higher, and the great river itself fills you with the sense of its majesty and power. There are fewer noble castles to solicit one’s jaded attention; but the thought how far and how fast we are running through unfamiliar countries and peoples to the very gates of the mysterious East, haunts one with a quickening charm. The evening was closing in as the steamer carried us to Buda-Pesth, or Pesth-Ofen—to discover, to one’s astonishment, that the lines of palaces on the boulevards at Vienna were repeating themselves along the river front of the capital of Hungary. But it is late, and the long day’s sail has surely earned a night’s repose.

The city of Pesth is singularly well situated. Those who know Edinburgh can easily realize it. The Princes Street valley, through which the railway runs, must be doubled in breadth and filled up with the Danube, and the Calton Hill must be taken bodily across it and placed on the same side as the Castle. When that has been done, and the whole Princes Street side smoothed down into a great flat plain of houses running out to miniature fields and open country, we have a model of Pesth-Ofen. Ofen is the double-hilled town across the Danube, with the Emperor’s palace where the Castle stands—the rock sweeping down less steeply to the river, and falling in terrace gardens, bright with laurels and laburnums and flowering currants. In place of the Calton Hill stands the fortress of the Blocksberg, which could at any moment lay the open city of Pesth in ruins. The town of Ofen is a mass of tortuous and half-paved lanes struggling upwards from the river between and towards these two summits.

It is picturesque enough from the other side, but close at hand it is poor and mean, a sort of Irish village multiplied fifty-fold in population. On the river there are some handsome houses, above there are but peasants’ cottages and little beershops, and a church or two. The glory of Buda Pesth is modern. Eighty years since the University was brought in from Tyrnau, and many of the public buildings still remind one of the old days when the town was insignificant. The fine buildings are all new, and away from the river esplanade they are not numerous. There is a huge cathedral begun, and left quarter finished. There is a great Jewish synagogue in a sort of Moorish architecture, which is the largest and most remarkable ecclesiastical building of the place. It is with a strange sensation that one reads signboards in three languages—German, Magyar, and Hebrew—to inform the passer-by that he may have beer and wine. There are many Jews here, and there must be many who know nothing but Hebrew, or these Hebrew signboards could hardly be so common. The theatres, the post-office, the municipal buildings, are poor and mean. There is a little oddity of a Greek church, with a huge painted screen, stretching from floor to ceiling, completely separating choir from nave. There are Protestant and Roman Catholic churches, and a cloister and a monastery. I should have thought there was little poverty in the place, had I not chanced to see one mid-day distribution of alms at the Franciscan cloister. A troop of old men and women were swarming in and out at the side gateway of the Franciscan church. They went through a long cloister till they came to a room beside the kitchen of the monastery, in which a comfortable-looking monk, of about forty, was smoking a long pipe and superintending the distribution of meat soup. It was dreadful to see how greedily some half-dozen of the poor old creatures, who were nuzzling together inside the door of the cloister, were devouring the soup and meat they had just received, plunging their fingers into the smoking mess, and worrying the solid bits as eagerly as a starving dog worries a bone. Outside there was little sign of poverty. Everybody seemed busy and industrious. There is far less of outward charity than in Vienna; indeed, there is a certain king-of-my-castle air, but

there seems much more work about the shopkeepers, and everybody one meets with is at first hardly agreeable. There are innumerable book-shops. The literature is cosmopolitan—French, English, German, and Magyar, but it is plain that German is a foreign language, like French or English. The official proclamations and the street bills are mostly in both languages, but one never finds them in German only, and often only in Hungarian. To my surprise, the people are anything but handsome. Most of the grown men are short and square-built and strong-looking, but there is a greater mass of stunted and unhealthy-looking lads with blotchy faces and bad blood, than I have seen, I think, in any other capital in Europe. It is out in the country perhaps that one sees the true Hungarian; and when we did go out, we seemed to lose the unlovely-looking clerks and *commis-voyageurs* who crowded us in Pesth itself. But even about them there was an unmistakeable look of the East; and it is clear that with Vienna we have left behind us many habits of Western Europe.

Pesth is still full of memories of 1849. In the open square beside the palace there is a monument to General Hentzl, who, "with Colonel Allmoth and 418 braves, died here a death of sacrifice for Emperor and Fatherland." The Hungarians swarmed across the river up the hill from Pesth, and poor Hentzl did what he could to keep them from the heights on which the citadel was then planted. But the ruin of that time, and the resolution since Sadowa to treat Pesth as almost an equal capital of the Austro-Hungarian Empires and Kingdom, have given it the material impulse of which it shows so many signs.

We went out one day to the races, when they were honored by the presence of the Prince of Wales and Prince Arthur. The Rakos course lies some five miles or so from the centre of the city, on a broad oasis-bordered flat. Horses, riders, and

trainers were many of them English. There was the grand stand, the saddling place, and the ring, but they were different from the English institutions of the same names. There is no betting in one sense, but there is a sort of public sweepstakes in which everybody puts down so much on the horse he thinks likely to win. If he chooses an outsider, the chances are that there will be few with whom he will have to divide his winnings; if he chooses a "hot" favorite, he cannot expect much more than his stake to be returned. The races were much like other races, except one for farmers' horses. It was ridden by Hungarian farmers without saddles, and in their national costume. A huge nightshirt flows down to the feet, and is sewed up to make a loose pair of trousers. A sleeveless waistcoat is stuck on, and the long white arms of the shirt fly loose, a foot or so broad, at the wrist. The head is covered with something like a tea-cosy, or a smoking-cap, with a feather stuck in it, and the dress is complete. The horses were light-looking, but active and business-like, and the riders rode as keenly as if the race was for life. Two of them could not get their restive animals off till the others had ran nearly half the course, but they insisted on running it out as faithfully as if they had a ghost of a chance of winning. Over every incident of the race the excitement of the crowd was as great as it could have been at home, and the "road out" was as dusty and as full of perilous chances to carriage or rider. But there was no such carnival of "*gaminism*," either here or at Vienna, as on an English racecourse. There were no Aunt Sallys or Cheap Jacks, or men with nimble peas or shows, or Chinese jugglers. Everything was decorous and business-like, till the common eagerness over the race made the whole world kin. I was called home hurriedly, and the vivid contrast between Pesth and London was the most startling of my experiences of Eastern travel.—*Macmillan's Magazine*.

MANZONI.

"EI FU." Such are the opening words of that great effort of Manzoni's genius, the Ode on the Death of Napoleon, and they are now applicable to the Poet him-

self. He *was*, he no longer *is*, the author of the greatest work of fiction in the Italian language, the poet whose best energies were employed in the praises of reli-

gion, the champion of truth and justice, the defender of the Christian faith against the attacks of infidelity; for on Thursday, May 22, 1873, at the great age of eighty-nine, Manzoni went to his rest.

"The city wears mourning" (*La città è in lutto*"), was proclaimed in word and deed at Milan, and so it should be. Nevertheless the lamentations, which the loss of one at the same time so virtuous and so eminent would naturally occasion, are checked by the consideration that a life of singular honor and distinction, prolonged far beyond the usual term of existence, with full possession of all the faculties, has been brought to a peaceful close at his native place, and surrounded, if ever man was, by all "that should accompany old age," "as honor, love, obedience, troops of friends."

The slight sketch which follows is intended to induce the general reader to pursue the study of Manzoni's life and character in his works, and, in however humble a degree, to contribute to their estimation.

Alessandro Manzoni was born at Milan in 1784. His father, whom he had the misfortune to lose in early youth, was Count Manzoni, his mother the daughter of Beccaria, the author of a treatise on "Crimes and Punishments," once much, and not undeservedly esteemed. She inherited, and further transmitted to her son, a portion of the sound wisdom and generous principles which animate that work. It was not unbecoming the grandson of Beccaria to record, as it will be seen he did later, his horror of torture, and to expose the wickedness and uselessness of it as a judicial mode of discovering the truth. Manzoni's ambition was early fired by the example of the three great contemporaries who immediately preceded him in the difficult path of letters—Vittorio Alfieri, Vincenzo Monti, and Ugo Foscolo. He was barely twenty-one when, by an epistle in blank verse, he proved himself not unworthy of being admitted into that fellowship. In these verses he imagines that the spirit of his friend appears to him after death, and, in reply to the question as to whether he was not reluctant to tear himself from this world, he puts into Imbonati's mouth a fearless and spirited condemnation of those vices which had already filled with disgust the youthful mind of Manzoni. In them we see the first germ

of those feelings by which his life was influenced—the love of truth and justice, and the abhorrence of oppression and wrong—which appear in all his works, and which, first professed at twenty-one, he maintained unchanged through a life prolonged to its ninetieth year. These verses, while by no means destitute of individual merit, are so remarkable on this account that a translation of some of them is here given:—

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And highest praise to have abstained from sin.
This earth, where word and thought are ever
At variance, where, aloud by every lip,
Virtue is lauded and in heart contemned,
Where shame is not. Where crafty usury
Is made a merit, and gross luxury
Worshipped—where he alone is impious
Whose crime is unsuccessful—where the crime
Loses all baseness in success: and where
The sinner is exalted, and the good
Depressed: and where the conflict is too hard
Waged by the just and solitary man—
'Gainst the confederate and corrupted many."

R. P.

In 1805 he accompanied his mother to Paris, where, by his relationship to Beccaria, whose book had been commented on by Voltaire and Diderot, he attracted the notice of Volney, Cabanis, De Tracy, and Fauriel. His intercourse with these men who represented the Atheist school of thought of the eighteenth century, was attended by an exactly opposite result to that which might have been expected. It produced a strong reaction upon his generous mind, and first incited him to become the champion of the truths, which they attacked. It reflects no small credit upon the natural rectitude of his principles that he should have found safety in what might have proved a dangerous snare. He met with an immediate reward, for the light of the Christian faith, which he had been able to descry amid the dark mists spread over it by her enemies, dawned full upon his mind, revealing to him the truth of those mysteries which the philosophers, in their pride of intellect, could not discern, and enabled him to utter them anew in hymns far superior in originality of thought and beauty of expression to any others which had hitherto been written. The chief of these are upon the vital truths of Christianity: The Nativity (*Il Natale*), the Passion (*La Passione*), the Resurrec-

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upon the same subject to defend a young author, in whom he felt a deep interest, from the attacks of English critics in the *Quarterly Review*.* The "Carmagnola" was also commented on in the *Journal des Savants*, the *Revue Encyclopédique*, and the *Lyce Français*. Manzoni replied to his French critics in an elaborate letter on "l'Unité de Temps et de Lieu," written in French to Monsieur Chauvet, and pronounced by Fauriel himself to be "just, profound, and conclusive." The "Adelchi" shortly followed upon the "Conte di Carmagnola," and justified the expectations which had been raised by his first tragedy. Goethe, whose interest in Manzoni had been further stimulated by a personal acquaintance, and who also commented on the "Adelchi," now pronounced that "Manzoni has won for himself a most honorable place among the modern poets; his beautiful and really poetical talent is founded upon genuine human sympathy and feeling."† Neither the "Adelchi" nor the "Carmagnola" is adapted for actual representation in the present time, or in the present theatrical circumstances, but the "Cori" which they contain, and which, formed on the model of the Greek tragedies, Manzoni first introduced into the Italian drama, are really noble specimens of lyrical poetry. Speaking of the two in the "Adelchi," Goethe observes that they reveal to the mind in one moment a chain of ideas, which stretches back into the past, fills the present, and reaches forward into the future. The first of these relates to the surprise of the Longobardian army by Charlemagne's troops, and concludes with the author's condemnation of the theory that the deliverance of Italy from bondage would be secured by the intervention of a foreign power. The second, upon the death of Ermenegarda, the wife of Charlemagne, who, when unjustly repudiated by her husband, took refuge in a convent, is almost unrivalled in deep and tender pathos. The following translation will perhaps suggest some of its beauty to the reader, or at least induce him to consult the original:—

"Loose dishevelled tresses, thrown
Wildly o'er her panting breast,
Drooping hands and marble brow,
The dews of coming death confessed;

Rapt in holy thought, her eye
Sought, as she lay, with trembling glance, the
sky.

"The wailing ceased; the solemn prayer
Rises from the choral band,
Upon the death-cold countenance
Descends a gentle hand;
And o'er the azure eye-balls' light,
Spreads the last veil of never-ending night.

"Lady, from thy troubled mind,
Chase each earth-born hope and joy;
Prayer, the broken-heart's oblation,
Yield to God, and die!
Far from realms of time and space,
Is thy long suffering's resting-place.

"Ah! such thy unrelenting fate,
Sad mourner here below,
Thy prayer for forgetfulness
Ungranted still to know;
At length affliction's sacrifice,
Unto the Lord of Saints, in sainted grief, to
rise.

When those sleepless shades among,
That cloister's holy aisle,
Those altars ever worshipped
By the virgin's holy toil;
E'en there, amid the vesper strain,
Rushed on her thought the days that may not
be again,

"While yet, beloved, and careless
Of the morrow's treacherous chance,
In pleasure's maddening ecstasy,
She breathed the gales of France;
And mid the Salian daughters there,
Went forth the most admired, the fairest of the
fair;

"When, her bright hair decked with jewels,
From some watch-tower's lofty place,
She beheld each object, instinct
With the tumult of the chase;
While, bending o'er his slackened rein,
The Monarch, with his flowing hair, came
thundering o'er the plain.

"Behind him came the fury
Of the fiery snorting steed,
The rapid flight, the quick return,
Of hounds in breathless speed;
And, from his penetrated lair,
The savage boar rushed forth, with fiercely
bristling hair.

"Pierced by the Royal archer's shaft,
His heart's-blood dyes the trampled plain;
See, from the ghastly sight she turns
To her attendant maiden train;
Her shrinking face, which sudden dread,
All lovely in its agony, with paleness over-
spread.

"Oh! Aquisgrano's tepid stream!
Oh! Mosa's wandering flood!
Where, the rough chase's tumult o'er,

* No. XLVII., Dec. 1820. P. 86.

† Goethe's Werke, vol. xxxviii. p. 296.

* Aix-la-Chapelle.

His mail unclasped, the warrior stood;
Beneath whose ever-freshening wave,
His limbs, with noble toil-drops stained, the
Monarch loved to lave.

"As the dew-drop softly falling
On the burnt and withered plain,
To the scorched and faded herbage,
Gives the vital juice again;
Till in its former glory smile,
With renovated verdure, the once-parched, and
sickly soil:

"So o'er the harassed spirit,
Which an earthly love has broken,
Descends the gracious influence
Of a word, in kindness spoken;
Until its gently healing art,
To another and a calmer love, diverts the
aching heart:

"Alas! but as the morrow's sun
Climbs the heaven's fiery way,
The still and heated atmosphere
Consuming with its ray:
Bewithering all around
The slender grass, just lifted from the freshly
moistened ground.

"Thus, though lost in brief oblivion,
Will immortal love return,
And the spirit, unresisting,
With its wonted fervor burn;
Recalling to their well-known grief,
The thoughts, that vainly wandering, sought a
permanent relief.

"Lady, from thy troubled mind
Chase each earth-born hope and joy;
Prayer, the broken-heart's oblation,
Yield to God and die;
Die, and let the sacred earth
Thy tender reliques hide, the witness of their
birth.

"Rest, Lady, rest; in still repose
Grief's other victims lie;
Wives, whom the sword left desolate,
Virgins betrothed in mockery,
Mothers (oh agony!) compelled to hear
The shrieks of dying sons yet writhing on the
spear.

"Thee from Royal lineage sprung,
From th' oppressor's guilty race,
Who found in coward numbers strength,
In reason insult, and in right disgrace;
In blood their privilege, their pride,
Remorseless to have lived, remorseless to have
died:—

"Thee kind misfortune lower placed
Amid the suffering crowd;
Have then thy rest—their pitying tears
Shall deck thy early shroud;
No word of insult shall be said,
No act defile the ashes of the cold and blame-
less dead.

"Die, and to thy lifeless face
That peaceful calm restore,
Which the future unpresaging,

Rapt in present bliss it wore;
While with thyself alone,
Sweet converse held the happy thoughts be-
neath the virgin's gown.

"Thus, from the riven thunder-clouds
The setting sun unrolled,
And the shadowy mountains, mantled
In a flood of trembling gold,
Unto the pious swain betray
An omen, as he gazes, of the morrow's brighter
day." R. P.

There is only one chorus in the "Conte di Carmagnola," which describes in vigorous language the din and fray of the battle, in the midst of which there is no confusion; and the poet contrives to carry his own conviction of the wickedness of civil war home to the mind of the reader. The rather obscure passages of history which serve as a basis to each of these two tragedies are carefully illustrated by the author in historical notes.

The work of Manzoni which is best known is probably "I Promessi Sposi." It has been translated into all European languages, and has been as popular—can more be said?—as an historical romance by Sir Walter Scott. It was founded on the model which he furnished; it had, like his works of this kind, for its object to amuse, interest, teach, and improve the reader, to make a particular portion of history stand, as it were, alive before him. History supplied certain facts and dates, imagination peopled the place and the times with living persons dressed in the manners and costumes of the epoch, whose actions and fortunes were so interwoven with the true facts of history as to make the reader interested in the former necessarily acquainted with the latter. The object of Sir Walter Scott and Manzoni did not end here, but both strove to show that "Virtue alone is happiness below." Both refused to make vice attractive; both thought that to do so in the course of the romance, even though in the end it were punished, was high treason against morality and religion. Perhaps of Manzoni it may be more truly said than of any other successful writer of romance, that his work contained "no line which dying he could wish to blot." The scene of "I Promessi Sposi" is Milan and the neighborhood of Como and the Italian lakes; the time is the early part of the seventeenth century. The love-story of simple good persons, Renzo and Lucia, affords the opportunity for exposing the vices and virtues, the cus-

toms and manners, lay and clerical, of the epoch, and of introducing an account of that most terrible of Divine chastisements recorded in history—the plague, which ravaged Milan and its “contorni” in 1630. To attempt to describe what Thucydides, Lucretius, Boccaccio, and Defoe had described was a bold undertaking, but it was successful, as any reader of the thirty-first chapter of the third volume may see, and mainly because Manzoni imbued his narrative with the spirit of contemporaneous and original memoirs which he carefully consulted. He speaks wisely, and with full experience of the living incommunicable “power” which such records possess.* The never-failing tendency of such a visitation to disclose the worst and the best features of corrupt humanity appears in these pages, as in the everlasting record of the plague at Athens. Among the many philosophical passages in this romance, the effect of famine upon the minds as well as the bodies of the sufferers, and the increase of its inherent evil by a legislation which vainly attempts to alter the laws of nature, are forcibly described. The romance would be well worth reading were it only for the study of the characters, which are in truth so well known that it is only necessary to touch slightly upon them. The author does not fall into the mistake of making either his hero or his heroine too perfect. Renzo, bold, enterprising, and impetuous, is weak-minded and easily led into snares,—witness the scene in the “Osteria” at Milan,—but misfortune tends to strengthen and develop his character; and when at the last he shows himself capable of a great and noble effort in the forgiveness of his enemy, Don Rodrigo, the reader feels he has earned the happiness in store for him. Lucia’s character is gentle and retiring, and her instincts, always good, are strongly opposed to the kind of irregular marriage which her mother compels her to attempt as a mode of extrication from their difficulties. The account of the failure of this attempt makes one of the most spirited chapters in the book. This is the only instance of her principles failing her. Afterwards they guide her straight through the terrible dangers which beset her path, such as the scene in the Innominato’s castle, where by

her firm faith and simple eloquence she becomes the first instrument of his conversion and change of life, while her gentle, loving-nature easily leads her to forgive those who had caused her so much misery. The really fine characters which claim, if it may be so said, the personal affection of the reader, are Fra Cristoforo and Federigo Borromeo, Archbishop of Milan. The character of the first, to which the clue is given in the history of his youth (chap. iv.), speaks in his actions, the fruit of a life of self-denial and humiliation imposed in order to atone for the crime of his youth committed in a moment of fierce passion. From that time, from the moment of his asking forgiveness of those whom he had wronged, and accepting the “bread of pardon,” a portion of which he preserves in his wallet as a perpetual reminder of his fault, wherever there is a good deed to be done we find him, comforting his poor friends Renzo and Lucia in their hour of need, confronting the villain in his castle, and for their sakes patiently swallowing his insolent words, nursing for three months the plague-stricken people in the Lazzaretto at Milan, and dying from the exhaustion consequent upon these labors, but not before he has forced Renzo to forgive his enemy, and absolved Lucia from her rash vow. The character of Federigo Borromeo claims at once admiration for the holiness, harmony, and repose which are its chief features, made more striking by contrast with the violent scene in the Innominato’s castle, which immediately precedes the introduction of the Archbishop into the story. We feel, indeed, that “his life is like a stream of pure water issuing from the rock clear and limpid, pursuing its long course through various countries, without once stagnating or suffering its waters to be troubled, and throwing itself still pure and sparkling into the river. . . . He had the firm conviction that life is not intended to be a burden for many and a feast for only a few, but to all alike a serious business, for which each will have to give an account: and from his childhood he sought how he could best render his existence at once useful and holy” (chap. xxi.). And this beautiful description of his character forms a fit introduction for the affecting scene between the Archbishop and the Innominato. Don Abbondio, the weak priest, plays a middle part between the

* “Forza viva, propria e per dir così incommunicabile vi sia nelle opere di quel genere co-nunque concepite e condotte.”

virtuous and the vicious in the story. Excluded from the first category by his selfishness and cowardice, his vices are not of a sufficiently positive nature to place him distinctly in the latter class. Still Manzoni is careful to point the moral, showing how great mischief may be caused by such mere negative qualities, as all the calamities in the story date from his refusal to perform his duties from motives of personal fear. The vicious characters are drawn with much vigor, and probably only too much truth. Two of the most remarkable passages in the work represent the agony of mind they undergo: Don Rodrigo, when cut down by the plague in the midst of his career of crime (chap. xxxiii.); and the Innominato ("the Nameless One"), that other strange character, whose stony heart is melted by the prayers of Lucia, and who in the bitterness of his remorse is twice on the point of committing suicide, were it not for his half belief in "something after death" ("se c'è quest' altravita"). The changes which take place in his mind before he seeks the Archbishop are admirably portrayed. The minor characters—"Agnese," "Perpetua"—who often make the comic element of the story, are so described as to give that light and shade which makes the particular charm of the work.

The "Colonna Infame" is an historical treatise, written as a kind of supplement to the "Promessi Sposi,"* and intended to illustrate that portion (chap. xxxi.) which describes the plague at Milan in 1630. In the panic caused by the pestilence there grew up a strange popular belief that the disease was purposely spread by persons who were supposed to anoint (*ungere*) the walls of the streets and houses of Milan with a fatal poison. Were it not for the careful explanation contained in this chapter of the "Promessi Sposi," it would be incredible that so preposterous an accusation should have obtained any credit. Manzoni traces it back to the very beginning of the plague, which spread with such fearful rapidity because the magistrates, who formed a Sanitary Commission, persisted in denying the reality of the dreaded and horrible disease, and refused to take the necessary precautions against it. The

belief that a class of persons existed capable of deliberately spreading the infection by poison once established, the accusation was soon fastened upon some unfortunate victims. Their innocence of a crime which had never been committed, was of no avail in the eyes of judges predetermined to find them guilty. After the horrible custom of those times, they were put to the torture and forced to denounce themselves. Nor did the falsehood thus wrung from them avail them. They were put to death with circumstances of horrible cruelty: the house of Il Barbiere Mora, the supposed preparer of the poison, was pulled down, and the "Colonna Infame" raised upon the site to record his infamy. Till the year 1778, when it was pulled down, it might have been said of this, as of our City Monument, that it,

"Pointing at the skies,
Like a tall bully, lifts the head and lies."

Manzoni proves in his treatise, where the contemporary evidence of this disgraceful trial is carefully sifted, that the Column of Infamy recorded the guilt of the judges and not of their victims. Perhaps the preface to this work is the most striking part of it. Pietro Verri, in his "Observations upon Torture," which were suggested by the same horrible occurrence just alluded to, draws an inference as to the uselessness as well as the cruelty of that method of procedure for the discovery of crime. But Manzoni, Beccaria's grandson, goes deeper into the subject. It is not so much the cruelty, though that fills him with horror, as the flagrant injustice of the proceeding, which is so revolting to his just mind: "The horrible victory of falsehood over truth, of armed fury over defenceless innocence." The labor which he has spent upon this work will not, he adds, "be wasted if the indignation and loathing which must result from the study of such horrors are turned against those sinful and revengeful passions, which cannot be discarded like false systems, or laid aside like bad institutions, but which, by the contemplation of the hateful end to which they lead, may on other occasions be rendered less ungovernable in their fury and less fatal in their results."* Manzoni's energies were next employed in refuting an attack upon the Catholic Faith

* "I Promessi Sposi," chap. xxxii. Vol. III. p. 236. "Riserbandò però ad un altro scritto la narrazione di quelli (unzioni di Milano)."

* "Colonna Infame," Introduzione, p. 15.

contained in Sismondi's "Histoire des Républiques Italiennes" (tome xvi. p. 410). He entitled the book "Osservazioni sulla Morale Cattolica," and it refutes the position that attacks upon the dogma, rites, and sacraments of the Church deserve to be called Philosophy.

The life of Manzoni is best related in his works, for he took no part in the political affairs of his country, and, for the last forty years, has lived chiefly in retirement. We only hear of his being made a Senator of the kingdom of Italy in 1860; and in 1868, in spite of his advanced age, he assisted in preparing a report on producing unity of speech throughout Italy, taking for a basis the Florentine language. There are but few details of his private life either to be collected. He married, in 1807, Enrichetta Luigi Blondel, to whom he dedicated his tragedy of the "Adelchi." She died in 1833, and he afterwards married again. He appears to have left no son worthy of the name, his son Pietro having pre-deceased him, to whose children, Renzo, Vittoria, Giulia, and Alessandra, he has bequeathed his manuscripts ("Autografi"). His will contained no disposition with regard to his funeral. It has been well said of Manzoni that he himself, like his hero of the "Cinque Maggio," took up his position between two ages ("s'assise tra due secoli"), and that the undying wreath which his genius prepared for the head of Napoleon really rests upon his own brow, and, speaking for ourselves only, we prefer the renown derived from the empire of the Poet over the hearts and minds of his countrymen to the bloody victories of the Conqueror, however great the military genius by which they were won. Manzoni questioned posterity as to the reality of Napoleon's glory—

"Fu vera gloria? . . . ai posteri
L'ardua sentenza."

Posterity is answering, if it has not already

answered, in the negative. Manzoni's laurels were never tarnished by envy, hatred, malice, uncharitableness, or wickedness. There is* something inexpressibly beautiful and elevating in his old age. Retired from the tumult of the world, feeding himself on literature, cheered and animated by religion, modest in the extreme, receiving visits from every distinguished person who passed through Milan, accepting with courtesy, but without emotion, the homage of princes, with the one exception, it is said, of Victor Emmanuel, who had fulfilled the Poet's dream—the Unity of his much-loved Italy. He returned, and it is narrated as an exception, the visit of the King of Italy. For, says an eloquent writer, probably his friend Signor Bonghi, in the *Perseveranza* of the 29th of May, "He had two faiths—one in the truth of Catholicism, another in the future of Italy—and the one, whatever was said, whatever happened, never disturbed the other. In anxious moments, when the harmony between the two was least visible, he expected it the most, and never allowed his faith in the one or the other to be shaken. Rome he wished to be the abode of the King; Rome he wished also to be the abode of the Pope. Obedient to the Divine authority of the Pontificate, no one passed a more correct judgment upon its civil character, or defended with more firmness, when speaking upon the subject, "the right of the State." It is really not an exaggeration to say that Italy wept over his bier, while it has been calculated that a hundred thousand persons were actually present at his funeral. It is to be hoped that this intense appreciation of piety, patriotism, genius, and mental culture may supply a happy omen for the future of Italy, to use her lost poet's expression—

"Augurio di più sereno dì."

—*Macmillan's Magazine.*

PAUL TEMPLAR: A PROSE IDYLL.

BY EDWARD JENKINS.

THIRTY YEARS AGO! . . . And now as the wild, grey sky is fast glooming to utter darkness, and the ragged clouds, urged on by the mad North-East wind, are hurrying across the smooth face

of heaven, and I feel all the chill and depression of the dying hour of day palling

* See some details of his domestic life in *La Perseveranza* of May 26.

upon my soul,—I bring to memory this night thirty years ago. A night so like to this one—as wild, as cold, as joy-killing, with just such a grey-clouded, harsh-breath'd sunset, the sun unseen, its heat unfelt, and all Nature shuddering because the Angel of the North had wrapped it in his deadly embrace.

The Shadow of that night hath ever since been round me: I have dwelt in it, walked in it, worked in it, and out of it have been evolved, for good or evil, all the issues of my life.

Thirty years ago, this November day, I, PAUL TEMPLAR, son of a Yorkshire farmer, living far up near the Durham border, inwards a mile or two from the great eternal rocks that breast the waves of the Northern sea, had wandered to some familiar caverns, deep under the jutting cliffs, where I loved to sit and hear the sea bellying through the resounding vaults, or hearken to the curlew's scream, or watch the scurrying gales as they whirled past thick and misty—while through and above it all rolled the ceaseless noises of the distant waves murmuring in their deepest tones and clapping their hands to God.

A queer, bookish fellow was I, not overloved of my father, who strengthened his hands and loins to win his bread, and little cared for my idle fingers and mooning brains about his house. But he had to yield to the necessity of my laziness. I was deformed in the shoulders, and my pale face marked me out as a weakling, from four brawny, Herculean youths who were the pride of our homestead. How much they four loved and pitied me! How gentle were they to their 'gentleman brother,' as they used to call me—given to books and lounging, while they worked hard and sweatfully, tending and forcing the fitful, often too thankless, soil, under the invidious sky.

My mother was dead—died in bearing me.

Noblest of these noble brothers was the eldest. I see him now, Harold, with his great ruddy face, the broad forehead, and the curly auburn hair, and the brown eyes, deep and lustrous, and the well-knit, massive form.

I see too that fair girl he brought from Devon, whither he went to serve his farm apprenticeship, flaxen-haired, blue-eyed, coral-lipped beauty that she was, and so tender and fragile, our big folk for a while

looked at her with gentle awe, knowing not what to do with her or how to entreat her. As if some rare Dresden vase had fallen into the hands of brutish hinds, who recognized only its beauty, not its use, and cherished it fearfully, with a feeling something between worship and wonder.

Fondly did I love Eva with a pure brotherly love—and more fondly still I loved Eveline, the double image of her father and mother, the pet of all our hearts.

And it is of these two, that, recalling the events of this night thirty years ago, the bright, fair figures stand out to my eyes as real as at the time, against the background of grey and black and stormy eve. O bright, fair figures, long since translated and transfigured, where my eyes can no more behold your beauty!

The morning had risen as glum and cold as the evening afterwards went out. Fast drove the steel-shaded clouds, harsh was the voice and angry the breath of the wind. A sort of day I loved much, when I could get down on the shore behind some rock, and shelter myself from the chilling blasts. Eva intended to go to N—, a town twelve miles off, down in a little vale, that carried a small stream to the sea, where a few houses and fishermen's huts sheltered a community quaint and quiet; living mostly on the trade done with the surrounding thinly-populated district. Part of the way was over a hill, nearly four miles from our house, and along its top, where it was scarped away in a huge Titanic break straight down to the sea. Great rocks jutted out here and there, and many a cave and fissure pitted its black face; below, was a pavement of tremendous fragments strewn and piled with the strengthful abandon of Nature, among which the high tide surged and boiled and hissed. Over this hill, down again, to a valley and then along the shore round the next headland went the road to N—.

They had promised Eva the light, two-wheeled cart; and Eveline, who was to have a new dress, the main object of the journey, was to accompany her. A farmer's wife thinks little of such an excursion, and, though the giants humorously warned Eva, at breakfast, of the roughness of the day, they never thought of dissuading her from the drive. I offered to go with her as far as the cliff, about four miles, taking

with me my dinner and some books, and to await her return in the early afternoon. So Harold brought round the cart, with the patient old mare, and lifted in Eva and Eveline, and last of all, in the wantonness of strength, me, amidst jokes and laughter, and away we went. . . .

I wandered about above and below, and by and by sat down secure in a favorite cave, reached by a path from the top, which only a light body and cunning hands and feet could safely use. My eyes, weary with reading, had been resting sleepily on the weird, troubled scene beyond; my ear had been lulled by the thunder of the waves on those glistening rocks. I knew not the hour, but I was so intimate with Nature, I felt sure that Eva should long since have been with me on her way home.

Twice had I gone out and struggled up to the highest point of the cliff, whence I ought to have seen her cart climbing the hill. After noon the weather had grown colder angrier, and more gloomy. Grand indeed were the waves, with their tossing manes of snowy foam under that black sky.

As I descended the second time disappointed to my cave, I saw, with alarm, the north and east growing more desperately dark—the clouds quickened their speed to a riotous rate—and the drizzle blew cold and hard upon my face.

"Coom, Eva!" I said, "coom along soon, Eva and Eveline. Storm and night are behind ye. Coom on safe and speedily, my darlings!"

By and by the storm drove up fell and furious. O how the monster sea lashed out and roared amain! The scouring drifts of rain dashed past my cave's mouth and flung their cold drops back into my face as I shrank to the farthest end.

"Nay," said I, peering out anxiously, "God save thee, Eva. Mayst thou not leave the shelter of the cosy haven till this be over."

I grew uneasy. There was danger now, so vicious was the gale, in climbing even the few feet between me and the top; but, after waiting vainly a long time for a lull, and finding that the air grew darker and darker and the storm more fierce, I braved my heart for another effort and went up again.

Whiff—whirl—what a gust! It nearly blew me off my feet. I stood as manfully

as I could, and tried to make out the line of road. I could not see a hundred yards. The mist and rain and falling darkness veiled every feature of the landscape from my sight. I listened trembling.

"God help thee!" I cried; "Oh! where art thou, Eva? O little Eveline, evangel, where are now thy little face and feet, the sunshine and the music of our home?"

At this moment I heard a shrill cry coming through the storm. It was a sea-mew surely? It seemed not far from me, and it was sharp and so inhuman.

There it was again! And now another . . . fainter, sweeping by my ears on the loud-voiced wind. I breasted the storm down the hill, shading my eyes with my hand from the blinding drift, and pressing on desperately with a strength I was unconscious of. Two hundred yards—and I heard the shriek again, more subdued, but this time quite close to me. Yet I could see nothing in the road. It was certainly the cry of a child.

"Good heavens! Am I bewitched! It is in my ear. Eva! Eveline!" The little cry again. I looked about me. I was standing at a well-known point of the road. Here there jutted up two great pinnacles of rock, named the Danish Twins, and the road-maker had carried his road round them on the land side. Betwixt the pinnacles, which were about twenty feet apart, was a chasm, which came up to the edge of the road, in the shape of a letter V, sloping gradually from the apex. Around its slips and sides were mingled together rocks and brushwood and broom. It sloped down some fifteen feet towards a broad ledge of rock, a vantage place sheltered by the pinnacles, where I had often stood and gazed at the glorious prospect; and then there was a sheer fall over the ledge of two hundred feet, down to the monster rocks that threw up their jagged points below.

I leaned over the lip of the upper end of the chasm, peering down through bush and brier, towards the first ledge, and then, as my eyes fell on two light objects stretched upon the ledge, with the wind and rain whirling about them, my heart nearly stopped its beat, and the breath went out of my body.

I stooped down and examined the road. 'Twas clear enough what had happened. Here was the mark of the wheel which

had come too near the treacherous point of the chasm, and had broken away its crumbling apex. There just below were the bruised bushes to show how the cart had turned over—cart and horse and precious freight—and, for the rest, by some God's chance, there, before my eyes, were the two figures lying upon the ledge. As for the cart and mare

I remember how, when seeing that sight and taking into my soul all that it implied, there seemed to well up within me a fountain of devotion and resolve, such as I had never felt before. Of a sudden it was as if I had become possessed with a supernatural power. My heart grew like steel. I forgot, in the mastering enthusiasm of the moment, my poor, nerveless body; and the soul within me, big with the idea of saving those two loved and precious lives, seemed to swell with a giant's strength.

"Eva!" I shouted in the mad noise of the elements.

The larger of the two dim figures did not move. The smaller I thought I could see take an arm from the other's neck. Then it cried out piping and shrill:—

"Uncle Paul! Uncle Paul—u—u—l!"

"Eveline!" I cried, "darling Eveline, keep still for God's sake! What's mamma doing?"

"O, O, O Uncle Paul, come here!"

Down I dashed in a stupid frenzy, headlong and careless, and missing my grasp of a bush, stumbled and fell. A sharp scarp of rock received my thigh on its point, rent it down for twenty inches, and then let me drop on my back, roughly on the ledge, beside the figures.

It was many minutes before I recovered my senses. All the while the pitiless storm beat on us three. I came to myself to find Eveline with her arms round my neck, calling still, "*Uncle Paul!*"

The blood was running copiously from my wound. I tore the skirt from the little girl and bound up my thigh as well as I could. I felt that their lives depended on mine. When I turned to look at Eva, I found her lovely face pallid and wet, her clothes and hair drenched with the rain. On her right temple was a bruise. She showed no signs of life. I chafed her hands. I breathed into her cold lips. I dragged her in under some sheltering bushes and urged the little one to help me rub her mamma's hands. At length there were symptoms of life, and by and by she

opened her eyes and spoke to me. She could lie there conscious, but she could not move. I knew why . . . there was a fourth, a hidden life in the balance that night.

We could now scarcely see each other's faces. I drew the child in under the brush and tied her to her mother. I besought them both not to stir hand or foot. I took off my coat and threw it over them. I buttoned my waistcoat about the little one. And then I resolved, wounded and half-naked as I was, to try and get to Winnersly, our home, for help. There was no dwelling nearer. I hoped that Harold's anxiety might bring him out in search of us, and that I should meet him on the way. By this time, what with loss of blood and the forlorn responsibility of my situation, I began to feel giddy and weak.

Then I knelt down and prayed. I know not what I said. I only know I pleaded for their precious lives—and offered my own as a ransom for them if it might be. I only know that in the course of that transcendent appeal I seemed to see new light and gain new strength, though the sharp pain in my thigh warned me that the work I had to do would task my very life. Then I kissed them both—I could no longer see their faces—and commending them to the God of the winds and storms, I essayed to climb to the top of the cliff. Into the rough bushes, among the thorny broom, grasping and letting go—feeling and doubting—step by step upward I fought my way. I forgot the anguish of my wound, in the freshness of my spirited resolve to save the dear ones below. Twice or thrice I heard Eva's gentle voice cheering me and saying—

"Are you up yet, Paul? Save us, Paul. God help you, Paul."

I kept my groans quiet, thrilling as was my pain. Twice I missed my hold and nearly fell backwards, twice recovered with bleeding hands and fainting breath, but my soul was strong and hopeful.

"God bless you, Uncle Paul! Save us, Uncle Paul. God help you, Uncle Paul!" echoed a tiny voice, and my heart leaped to hear it.

"Paul, weakling, now for a steady, determined heart. They must and shall be saved!"

At length I stood on the brink. The most dangerous part of my work was over. For the sake of their lives it had been

carefully and slowly done. But the exertion left me feeble. I had to stop and adjust the bandage. The lacerated thigh was so painful, I could scarcely bear to touch it. With a grim resolution I clenched my teeth, and drew the cloth tight, until the anguish was intolerable. I hoped to stay the bleeding.

"Good God, how shall I ever do these four miles?"

I had not even a stick to lean upon, to relieve my leg. Yet I set out briskly. On my back was hurled the fury of the storm as I stumped and limped toilfully along. Every step was a fresh agony. But every moment I seemed to hear:

"Save us, Paul! God help you, Uncle Paul!"

And it formed a sort of burden and refrain, keeping time with my trembling footsteps as I labored along. It was so dark I could never have kept the road had it not been very familiar to me. An age seemed to have passed when I knew, by a change in the level, that I had gone only one mile. My heart began to sink, and I sat down a moment to rest. The stiffness and soreness of my wound were keenly brought home to me by the act. Could I possibly go three miles more in my present state? I ran over in my mind the difficulties of the way. There was not a hut or a house between me and home. A long piece of common, a deep dip in the road, and a hill, up which I had often bounded—these things lay before me, and here was I groaning with pain and the very life flickering in me.

"But," I said, "Harold's wife and Harold's child must be saved. Courage, Paul. 'God bless you, Paul! God help you, Uncle Paul!'"

As I put my hand on the ground to raise myself, it lighted on a round object. I seized and felt it. It was some wayfarer's staff. He had gone on his journey, but he had left this here for me,—I thought. My spirit revived.

"Bravo, Paul! push on. God hath sent thee a staff to lean upon."

I was so encouraged that I did the next mile almost rapidly. My thoughts went back to the two poor things behind me—"Oh! shall I be in time?"—and they went on to the house before me, with the five sturdy, unconscious men, who, had they known, would have swept along this road with great rapid strides, and have

borne my beauties in their giant arms home to life and warmth.

So I seemed to walk and leap and praise God for the help of the staff. But in the faith of it I was doing too much. I was using up my strength at a terrible rate. When I knew I had gone more than another mile, my steps slackened, and with my heart palpitating and my breath gone, I tumbled on the ground. The shock wrung from me an irrepressible shriek of agony.

"O *via dolorosa*! I cannot go on. This anguish is greater than I can bear. God himself seems pitiless, as his storm comes down so ruthlessly, and the awful gloom drapes and stifles my ardor and my hope. O *via crucis*!"

These last words reminded me of the Great human Redemptor. "Is it not so, ever?" I said. "Is not the way of love the way of tears?"

Here was I wailing over my own anguish, and there were the three lives, and the voices ever in my ear, yet unregarded in that moment of selfish depression. "God help you, Uncle Paul." I staggered again to my feet, and with desperate slowness and patience halted along—that torn hip excruciating me at every movement.

How I got on I know not. Weakness and pain were fast subduing my zeal. So how often succumbs the noblest soul to bodily anguish! I must have become delirious. I shouted and sang—I adjured my own body to be patient—I called aloud to Heaven to help me. I said,

"They shall be saved, Paul. 'God help you, Paul.'" And then I stumbled again, coming cruelly to the ground. The staff flew out of my hand, and I sank down with a groan, thinking that at last God had deserted me.

"Oh!" I said, "I had hoped that this poor, weak, and worthless life might have been redeemed from its abjectness in my brothers' sight, in my own consciousness, in God's estimation—by the saving of those three lives. Gladly then would I have lain down to die rewarded by the manly shout of my manly brothers. 'O well done, Paul. Well done!'"

But, as it seemed, it was not to be. I lay on my side unable to move. The groans I could not repress answered the wild menace of the winds, and said—"I yield ye all."

I groped for the staff. It was past

recovery. Vainly I tried to get upon my feet without it. My wounded leg was now useless.

Then I was tempted to lie still there and die. The life was gradually chilling in me. My head swam. I nearly swooned. But again there came before my vision the two pictures: the precious lives to be saved, there on the ledge behind me—in front of me the noble hearts to be blessed.

"O Paul, if every step were bloody, yea with great drops of blood, and every movement a new torture, it were thy meed to save them."

My heart grew stronger at the thought. I dragged myself along on hands and knees, weeping, with anguish, as I went, but praying and hoping still. . . . I cannot describe the horrors of that part of my way. A good deal of it I must have gone on unconscious. I was losing my reason. Hands and knees were bleeding. The cold driving into my exposed body made my teeth chatter. At length I swooned in good earnest. . . .

I know not how long I had lain thus, when suddenly I woke up, with a vividness that was startling. I thought I heard a terrible shriek, which pierced through swoon and deadness—to my very soul.

"Paul, for God's sake save us, quick!"

I could just lift my head. It was all I could do. The numb, stiff, bruised limbs, I no longer had power over them. There was only one more effort left to me. I shrieked with all my remaining strength like the voice I had heard—like a maniac: shrieked out unceasingly, the wild wind carrying away my cries from me, on its wings, God knew whither. I thought, 'I will spend my last breath to save them.' And so thinking, as my voice grew weaker and I felt myself to be dying—I concentrated my strength in one last effort—

Yes! O thank God, there was a responsive cry close at hand! Voices and lights, and in a minute or two the four strong men with Harold at their head had reached me!

"Paul, for God's sake, Paul, what does this mean? Where are *they*?"

He had gently taken up my head, while the lantern glow fell upon my ghastly face and on my glazed eyes. I could not answer him. I simply clasped my hands in token of thankfulness.

The strong man wrung his hands.

"Give him brandy, quick. Do you know where *they* are?" I tried to nod.

"He does. O Paul, wake up and tell us. Nay, look here, look *here*, brothers! How dreadful!"

They looked at my bleeding hands, then at my knees, then at the bloody wrappings round my thigh. I began to revive. In a few minutes I told them slowly where I had left Eva and Eveline.

"Where did you hurt yourself?"

"There. At the Hurry Scar, below the Twins."

"Have you come all the way like this?"

I nodded.

"O well done, Paul, bravely done!" cried the lusty giants in a chorus, and I swooned away for joy.

Long was I the hero of that homestead, where by-and-by another little Evangel came to look upon the uncle who had saved her life. Sweet, sweet and priceless to me are the memories of the grateful devotion of them all to me—still further wrecked and weakened by the terrors of that night. For my wounded thigh long kept me in peril of my life, and when it was healed, had so shrunk up, I could only walk with the help of crutches.

Nevertheless from that night, the imbecility of my past years went away. I had learned a lesson in the mysteries of life. It were possible, I had then discovered, that even I should hold in my hand the precious balances of human fates, and with weakling but determined zeal, there were yet left to me by Providence, powers of good, of rescue from evil.—*St. Paul's.*

A LOST ART.

It must have happened not unfrequently to those who have never had occasion or opportunity to make up their minds as to the expediency of granting Letters-patent for Inventions, to have attended in an

attitude of simple inquiry a meeting held for the discussion of the principles involved in it. Any one who has thus attended in the hopes of obtaining clearer views of an obscure subject must have been not a

little disconcerted, as the argument went on, to find how little agreement there was between the disputants as to first principles and elementary facts. One fact especially, as to which he has always supposed there must be a general consent among those conversant with the subject, undergoes, he is concerned to notice, a wonderful transformation on being presented to him from opposite sides. What, he is anxious to know, would be the effect upon inventors generally if Patent Laws were abolished altogether? The thoroughgoing advocate of the privilege insists on its being admitted as an axiom that but for some such shield provided for him by the State the inventor would work stealthily and, whenever it was possible, carry the secret of his discovery with him to the grave. The opponent of patent rights, on the other hand, ridicules the idea that trade secrets can be kept at all, or that an invention which has once proved itself useful in practice can possibly die out. As regards the possibility of secret working, he has ready a variety of anecdotes and cases drawn from the sober repertory of law reports, to prove that the ingenuity of the infringer has always been more than a match for the precautions of the inventor, and that moreover, when in his turn in the character of an outraged patentee, the inventor is bent upon detecting the infringer at his work, he does so in spite of all the subterfuges and precautions a guilty conscience can suggest. The attack where there is a secret to be stormed is always, he will tell you, stronger than the defence. That the following "true story" will have any influence upon the views of the parties to the debate it would be venturesome indeed to say, the policy of Letters-patent for Inventions lying just within that portion of debateable land on which men, otherwise at one upon the dogmas of Political Economy, are found arrayed on opposite sides, and into the discussion of which something of theological acrimony has managed to find its way.

The story tells how, nearly a hundred years ago, two men entirely, so far as one can see, unconnected with each other, discovered about the same time a very beautiful art, supposed to have been Photography—possibly Photography in color; how, notwithstanding that a Patent Law was in full operation, they practised their art in secret, and how, with a strong

suspicion in the case of one of them, that it was suppressed for purposes of State, the invention suddenly disappeared.

A few words will suffice to tell how "the photographs of the last century," as, without prejudice, we will call them for the nonce, were brought to light. At the gates of the sumptuous palace at South Kensington, in which Ornamental Art has been enthroned,—to the right as you enter, in a shed, or rather congeries of sheds, lie the treasures of her sister—the Cinderella of the family, Industrial Art. Huddled together in this mean, ill-constructed store, are masterpieces of inventive skill and glorious relics of inventors now no more, of which the nation may well be proud. Here may be seen the famous original of Trevethick's locomotive (as old as 1803), "Puffing Billy" (Hedley's locomotive), and Stephenson's "Rocket" (that killed Huskisson); the "Parent Engine of Steam Navigation," as it is here affectionately labelled, that drove Patrick Miller, of Dalswinton, along his lake at the rate of five miles an hour in 1788; and, placed as if to court comparison with this primeval form, beautifully finished models of the engines of the "Great Eastern," the models actually larger than the veritable engine of Dalswinton; the screw propeller (Bennett Woodcroft's) used in the first experiments made with that contrivance in an English ship of war; the reaping machine of the Scotch parson, Patrick Bell (parent and archetype of all other reapers on either side of the Atlantic), which closed a working career of forty years only to enjoy well-earned repose in Cinderella's cave; Arkwright's original models of card and spinning machinery,—historical models and engines, in short, in magnificent profusion.

It was in endeavoring to add to these trophies a noble relic, Watt's "Sun and Planet" engine, the first device whereby the motion of a piston was imparted to a wheel, that one of the many zealous servants in Cinderella's household stumbled on the traces of the "Lost Art." The liberality of Mr. Boulton, a descendant of Matthew Boulton, had placed the engine at the disposal of the Commissioners of Patents, and this offer was shortly followed by a not less liberal proposal from the representative of Watt, viz., to add to the collection at South Kensington the contents of Watt's workshop at Handsworth, every article in which was then standing as

it stood when the great inventor died. The condition attached to the latter gift marks the limit of the public spirit that dictated it. The Commissioners were to provide suitable accommodation for its display—a simple stipulation with the terms of which they have never yet been in a condition to comply.

On the morning of Tuesday, the 17th of December, 1861, Sir Francis Pettit Smith, then Mr. Smith, an honored fellow laborer of Mr. Bennett Woodcroft's in the work of introducing the screw propeller into ships, left London for Birmingham, to make arrangements in his capacity of Curator of the Patent Museum, for the transfer to that establishment of the "Sun and Planet." Beyond this he had no mission, and, beyond collecting any records he might chance upon with reference to steam engines of early date, no thought of instituting any inquiries. Before night he was destined to fall in with strange objects that launched him and many others for many a day upon a sea of speculation of a very different kind.

On reaching Birmingham Sir Francis at once proceeded to Soho, where he was received by Mr. Price, a gentleman who had acted as the agent of the Boulton family for nearly thirty years. While discussing various matters connected with the establishment of steam machinery at Soho, Mr. Price opened some of the drawers in the office, and pulled out of them some old papers, among them two "crumpled up like old dusters." Flattened out these are found to be pictures of so singular a kind that, unless they are attributable to photography, it seems hard to account for their production.* The suggestion of photography is no sooner made by his visitor than Mr. Price takes from a drawer—a parcel inscribed "Sun picture of Soho House, the residence of Matthew Boulton, before the alteration of 1791"†. Within the parcel, face to face, are found two silvered plates, and on them—common daguerreotypes! Leaving behind him direction for the transmission of the "Sun and Planet," and musing much on the singular appearance of the pictures he has seen, Sir Francis returned to town.

* "If they are photographs," is the judgment of the *Photographic News*, reviewing the subjects of the discovery so long afterwards as November, 1863, "we have made no progress in reproduction—possibly retrogressed."

It will be surprising only to those to whom the history of the thousand and one delusions that have at different times taken possession of the public mind is unknown, to see how confidently and in what numbers, so soon as the ante-daguerreotypian theory of photography is broached, confirmatory volunteers come trooping in. One gentleman in his zeal for the new idea produces a glass positive portrait, which has been so long in his family that no one can remember anything of the original. He proposes in forwarding it to Sir Francis to obtain a table-rapped certificate from "the spirits" as to the individual portrayed, and thus supply indisputable evidence of the antiquity of the art. One can feel for a discoverer beset with such auxiliaries! In much the same spirit a family tradition of Soho was disinterred, one that promised not merely to reveal the nature of the art that had perished, but actually to disclose the wicked means employed for bringing it to its end. That Josiah Wedgwood's Paris agent should have borne the name of *Daguerre* was a circumstance invested all at once with wonderful significance!

Our story, from the period when the "Shepherd and Shepherdess" pictures were rescued from the obscurity of the office drawer at Soho, is best followed in the correspondence which ensued between Mr. Price, who remained in Birmingham, and Sir F. Smith, after his return to town. On the 3rd December, 1862, after some remarks as to the silver plates (innocent impostors in whom we shall lose all our interest directly), Mr. Price writes:—

"The other photos you saw had a number scored on the face, 7, 6, or 9, and these I still hope to get for you in a day or two. I don't want to tease you too much, but suppose I could give you a clue to the camera which made these pictures! I had it once, and did not know what it was for. Some thirteen years ago I showed it to a friend of mine, and he appeared so delighted with it that I could not help giving it to him. When I cleared out Mr. Boulton's old library, Miss Wilkinson told me to take away 'all that rubbish,' and do what I liked with it. The camera and these old pictures were amongst the rubbish. Little did I think what they were."

On the 16th December, he informs Sir Francis:—

"I saw an auctioneer to-day who some years ago was a common dealer and broker. He knew Mr. Powell (the gentleman to whom the camera had been given), and when I inquired if he knew his address, the subject of the sun pictures came

up. He reminded me that some years ago, when I turned out all the rubbish and waste paper from the library at Soho, he bought the old scrap paper, and amongst it was a very curious picture which he could not make out. I did not recollect any picture being amongst the rubbish. He says that in sorting it over he found it and put it on one side. Since then he has frequently brought it out, and has always become bewildered as to what it is. He says it is neither chalk, crayon, Indian ink, paint, or painting. He will bring it up for me to see. It is in two parts, he says, and from its general description I suppose it is a brother or sister of those I sent you."

On the 19th December, he writes:—

"The broker who has got the other pictures expects to be paid. Of course I made very light of them. As he bought them merely as waste paper, I said he ought to return them to me as such. I asked him what he wanted for them, and he merely said he would consider of it. They should be secured by all means. They are very beautiful."

The reply is a telegram from Sir Francis, "Don't give him time to think, but get pictures at once, lowest price you can." On the 22nd, after assuring his correspondent that he will if possible get the pictures for him, Mr. Price proceeds to notice the family tradition I have adverted to. It has to be collated out of the experiences of one Townsend, an old man who had died some eight years before, and who had been Mr. Boulton's "cad," or handy man, and was well known in that capacity to the members of the celebrated Lunar Society, which held its meetings at Soho. "In thinking over these pictures," Price writes, "I recollect old Townsend in his gossip telling me that they (the great men) used to have pictures on the table, not the picture themselves, but the likenesses of the pictures. . . . He explained 'they' were in a dark tent and nothing but a picture on the table."

In January of the following year, the auctioneer has discovered "two more beautiful old sun pictures" among the rubbish, and these are duly ransomed and added to the others. On the 5th February, Price writes, "Boulton and Fothergill sold pictures painted in oil by the dozen at very low prices, and I firmly believe that I have a clue to the secret, but am not yet quite ready to give you details." In confirmation of his views he forwards from among the papers in the Soho office, a batch of copies of invoices and orders for "square mechanical paintings," and "oval pictures in forms of medallions."—Some of the "mechanical paint-

ings" were of great size. In a letter written by a customer in July, 1781, we have the wish expressed that "Rynaldó preventing Armina from stabbing herself" could be had in a smaller form than that in which it was being published,—fifty inches by forty.

On the 23rd May, Price announces a very mysterious circumstance that has come to his knowledge. After remarking that the entries in the Soho books prove that a great many of these pictures must be somewhere among the nobility and gentry of London, he goes on, "*I think Government had something to do with the suspension of the trade, because the person who held the secret was offered a pension. . . .*" A few days later, on the 29th May, he is fast losing faith (we shall see how justly directly) in the silver plates; but is being daily fortified in his belief in the new theory as to the paper pictures that are cropping up. "Eginton's name," he writes, "is erased in many places in the old books. All this is a mystery. . . . Boulton and Eginton I believe alone knew the secret, and with them it died."

Before noticing the very remarkable piece of evidence (the "Dartmouth Letter") on which this conjecture of Government action is based, let us say a word about Eginton, the pensioner that was to be, who now for the first time appears upon the scene. He is certainly no mythological personage, for his biography is contained in the prosaic register of Nagler's *Künstlerlexicon*, published in 1837, as that of—

"EGINTON," FRANCIS, a celebrated English glass painter. He effected, in conjunction with Jarvis, a new revolution in that art, by making it an imitation of oil painting. . . ."

The article gives a list of the most important of his works, in all some fifty. They consist of historical subjects and portraits in Magdalen College, Oxford; St. Paul's Church, Birmingham; Salisbury and Lichfield Cathedrals, Arundel Castle and Fonthill. His death is given as having occurred at Handsworth, in 1805, when he was in his sixty-eighth year.

The notice is followed in Nagler by another which may possibly, for those who pursue this matter for themselves, possess interest. It is that of "Eginton, Rafael," whom it speaks of as "glass painter at Birmingham, a successor of the preceding, whose reputation he maintained."

In July, Mr. Price writes that he is "startled" at a communication from Sir Francis, to the effect that Miss Meteyard (who was writing the life of Josiah Wedgwood) has found mention of a camera belonging to one of the Wedgwoods in 1791. "You may with safety," she has told Sir Francis, "refer the first experiments in photography to as early a date as 1790 or 1791. In this latter year I find Thomas Wedgwood, third surviving son of Josiah Wedgwood, sending his camera to be mended. . . ." The idea that the camera he has given away may be the very identical camera with which the Lost Art has been practised revives in force, and he assures his correspondent he will try to follow up its traces. "You may depend upon it," he adds, reverting to the mystery he has drawn attention to, "this secret was allowed to die out with the death of Eginton and the lunatics,* and all traces of it were destroyed at the instigation of the Royal Academy and some members of the Government. In my old letter books hundreds of pages have been torn out besides many erasures." •

On 1st November, 1863, Mr. Price has so far despaired of the recovery of the camera as to repeat with complacency the suggestion that has been made by a good-natured friend that it is probably doing duty in some Staffordshire chimney corner as a saltbox. He speaks of sending up some oil pictures by Eginton, and mentions a fact worth noting as it disposes of one of the many theories which undertook to solve all the difficulties presented by the case, viz. that the papers found were only the intermediate stage, so to speak, between the original and the article produced for sale. The fact is, that the pictures are all reversed.

And now for the Dartmouth letter, the famous document which has given such zest to the story by infusing into it the delicate flavor of Court scandal. The letter is one of the few pieces of evidence in this singular case which will bear handling; whether it goes to support the "old cad's" theory, is a very different question. The "old cad" was of opinion that Sir

William Beechey was at the bottom of the whole affair. Price's contributions to this part of the story are only the recollections of Townsend. "He told me," says Mr. Price, "that Beechey painted Matthew Boulton's picture, and when he was at Soho, Mr. Boulton explained to him this invention of talking sun pictures. Sir William then went amongst all the artists and got up a petition to Matthew Boulton and the Lunar Society begging them to stop, because it (the secret) would be the means of shutting up the painters' shops—this was poor old Townsend's expression."

And to "poor old Townsend," rambling on in his dotage, according to the light left him, we are inclined to listen with an indulgent smile. We have a right to ask something more definite at the hands of a scientific writer, when he refers to these same ramblings as if they were the firmest of facts. "We were informed," so writes the *British Journal of Photography*, on the 16th November, 1863, "that a copy of a petition from the well-known painter, Sir William Beechey, to the members of the Lunar Society, is in existence urging them, &c., &c.," in the words and to the purport and effect of old Townsend's recollections. If there be such a petition in existence, no effort ought to be spared for its production. If there be not—the fable of the Three Black Crows seems in danger of having its proud pre-eminence contested.

The so-called Dartmouth letter, to come to it at last, is a letter written by Matthew Boulton to Lord Dartmouth, the press copy of it being found among Matthew Boulton's papers. It is in these terms:—

"MY LORD.—A few days ago I received a letter from Sir John Dalrymple, dated Dublin, May 27th, in which he surprises me by saying, 'I have written to Sir Grey Cooper to have a pension of £20 per annum for Mr. Eginton: so if there is any stop write me of it to Scotland, and I will get it set to rights, as I know nothing but inattention can stop it.'"

"As I think I cannot with propriety write to Sir Grey Cooper upon that matter, having not the honor of being known to him, and as I have never mentioned the subject to him, or any person beside your lordship, I hope, therefore, to be pardoned for thus troubling you with my sentiments and wishes.

"In the first place I wish to have an entire stop put to the pension, because Mr. Eginton hath no claim nor expectations. I pay him by the year, and consequently he is already paid by me for all the three or four months spent in that business: and as to an overplus reward for his secrecy, I know how to do that more effectually, and with

* Among the members of the "Lunar Society," who were thus nick-named, were Matthew Boulton, James Watt, Dr. Priestley, Dr. Parr, Sir W. Herschel, Sir Joseph Banks, Dr. Solander, Dr. Arelus, Benjamin Franklin, Mr. Roebuck, Dr. Johnson, and Mr. Wedgwood.

more prudence, than giving him annually £20, which will only serve to keep up the remembrance of that business, and therefore 'tis impolitical.

"Besides it might, perhaps, be injurious to me, as such a pension might tend to make him more independent of me and my manufacture.

"His attachment to me, his knowing that no use hath been made of the things, the obligation he is under to me, and his own natural caution and prudence, render me firmly persuaded that the scheme will die away in his memory, or at least will never be mentioned.

"If anybody is entitled to any pecuniary reward in this business it is myself, because I have not only bestowed some time upon it, but have actually expended in money between one and two hundred pounds, as I can readily convince your lordship when I have the honor of seeing you at Soho; and, although I was induced by _____ to believe that I was writing at the request, and under the authority of a noble lord (whose wisdom and virtue I revere), yet I never intended making any charge to Government of any of my expenses or for my trouble.

"All that I have now to request of your lordship is that a negative be put upon the pension.

"My lord, your lordship's most dutiful, most obliged, and most faithful humble servant.

"M. B."

It seems wanton to destroy almost as soon as they appear any of the harmless little mysteries we have by this time conjured up, but as a very important personage, who will arrive directly, would observe, *Magna est veritas*, and we can happily show our devotion to Truth, and at the same time add to the real interest of our story, by giving the *coup de grâce* to some few of them at once.

The silver pictures, as I have already hinted, were not real antiques. The inscription on the parcel notwithstanding, they turned out (we shall see how directly) to be daguerreotypes of a date when daguerreotyping was by no means rare. The hopeful inscription on one of the pictures in the broker's shop ["Sun picture taken by a process invented at the Soho works, Handsworth, the year 1780-85, 'Flora bedecking Pan'"] was found to be in the handwriting of the broker, who gave as his authority for the legend,—Mr. Price! If the complicity of the Government in an atrocious piece of Vandalism is to go too, we owe a word of apology to sundry photographic zealots who carefully annotated the facts, and drew attention to the circumstance that Lord Dartmouth's seat was in the vicinity of Soho, and that Sir Grey Cooper was an indefatigable Minister of State. We can in truth hardly hope for a conviction. If we remember

that at the time that Eginton was busy with his pictures at Soho, the Soho factory was, so far as the copper coinage of the country was concerned, a Royal Mint, it seems possible, to say the least of it, that the invention the Government was desirous of putting a stop to, the preliminaries of which invention Boulton had entered on "at the request and under the authority" of a noble lord, as to which invention Boulton had never spoken to any one but his lordship, and more than all, of which no use had ever been made, was an invention more nearly affecting the welfare of the State than the copying of celebrated pictures, to the detriment of artists, "by chemical and mechanical means."

One piece of evidence adduced by Mr. Price almost inclines us to believe that the invention did not die suddenly out at all. This is the proof-sheet of an article entitled "Handsworth," supposed to have been written by James Watt for a topographical work (Lewis). If the article was really written by him it is extremely curious, for after mentioning astronomical clocks as having been constructed at Soho, it goes on to say, "The art of copying pictures in oil colors, called Polygraphic (we must bear this name in mind as we proceed), was also invented and pursued here under the direction of Mr. Francis Eginton, to whom it was subsequently resigned, and who became celebrated for his painting upon glass."

To make amends for any disappointment occasioned by our actually necessary Massacre of the Innocents, we will now bring forward another mysterious personage,—unless indeed some critic shall step in and prove him to be only Eginton in disguise,—busier even than Eginton with chemical and mechanical painting, working for a sort of junior "Lunatics" in London, and practising his art not merely without molestation by the profession, but under the sanction of names still greater than that of Sir W. Beechey. His secret too is lost, and his works, less fortunate than Eginton's, have passed away and left "not a wrack behind."

Our new acquaintance is Mr. Joseph Booth, a gentleman describing himself as of Lewisham, artist, and engaged, when we first meet with him, in 1784, in making chemical and mechanical reproductions of works of art, very much after the fashion of

Eginton at Soho. In one important particular he differs materially from Eginton. He has a turn for authorship, and loves, if we would believe him, to discourse about nothing so well as the new invented Polygraphic art. He makes his art the pretext for deluging us with his views about all things earthly and supernal—save one—how he made his “chemical and mechanical paintings.” On this point he is reticence itself, and he leaves us, after we have read both his treatises from end to end, under the uncomfortable impression that, while pretending to take us into his confidence, he has been laughing at us in his sleeve. The pamphlets are perhaps as neat a combination of rigmorole and business “smartness” as anything that has been put forward by the great showman of our latter days, Artemus Ward himself. Booth’s first production styles itself—

“A Treatise explanatory of the nature and properties of POLLAPLASIASMOS, or the original invention of multiplying pictures in oil colors, with all the properties of the original paintings, whether in regard to outline, size, variety of tints, &c.; together with a proposal for a subscription for forming a collection of pictures, truly original, on different subjects, interspersed with occasional remarks on the utility of painting, on the modern improvements in that art, and on the merits of the English school.

“*Magna est veritas et prevalebit.*”

The “explanatory” treatise is a treatise enlightening us on every imaginable topic with the exception, as I have said, of “Pollaplasiasmos;” full of the perplexities of an inventor where his art “happens to have even the appearance of clashing with the interest of those who may be employed in professions in any aspect similar to the new undertaking,” and the “undetermined state of mind” in which he (Booth) remained for a considerable time, “not knowing properly what method he ought to adopt to usher his invention into the world with that propriety which is necessary for an art entirely new.” After moralising on the relations between capital and genius, the artist is “induced on mature deliberation to throw himself and the product of many years’ labor at the feet of that impartial public who alone, &c., &c.,” and accordingly invites the impartial public to form a club for the purchase of his “pollaplasiasmos” paintings. “With respect to an idea prevailing that the paintings must be mere copies, I must observe that they cannot be termed so with any propriety,

especially when the subjects are designed on purpose for this work. Perfect colored pictures will be produced by this manner of painting, though the design is only made in black, or a slight tinted drawing, and the pieces from such sketches will be as exquisitely painted as if the subject was first laboriously finished upon a piece of canvas.” He forestalls very curiously an art critic of some celebrity, who gave reasons why we have no more of the works of this Lost Art, by drawing our attention to the imperishable character of the productions of Pollaplasiasmos:—“An entire new system of drawing and coloring, which is not subject to either change, cracking, peeling, or any other inconveniences, which too frequently attend even first-rate pictures painted in the usual manner.” Unless he is carrying duplicity to an incredible length his art had nothing in common with engraving, which he denounces as “a metaphysical thought which endeavors to form in imagination a living being without a body or member,” while his own art is “that to painting which engraving is to design. Moreover,” he adds, but without our seeing very clearly what the remark is intended to convey, “all the aerial beings of a Shakspear, or a Milton, must be formed of parts which are first realised in nature, else they could not possibly find a way to the poet’s fancy.” When he begins *seriatim* to set out “the imperfections of engraving, and the reason of his dwelling on those imperfections,” we may fairly hope we are on the eve of some discovery, and when he refers to the “sarcasms which have been abundantly bestowed” upon his invention, our curiosity is on the alert for some piece of contemporary criticism from which we may form a guess as to its nature. But the hope dies away as we read on and find only a string of platitudes about “real grandeur” being something more than “a profusion of gold and glitter,” and the eye being “never more pleased than when the mind partakes of the same sensation.” After wandering off to the history of tapestry, Albert Dürer, Hugo de Carpi, and Mr. Jackson of Battersea (who has, it appears, all but effected some wonderful improvement in paper hangings), he comes to notice the invention of one Le Blond, for printing in colors from mezzo-tinto plates. “These were certainly,” he says, “very good of their kind, but the great expense attending the

preparation of the plates, &c., considerably enhanced the price to purchasers, and though they were much esteemed at that time, yet they were nothing more than prints in colors on paper,"—from which we may fairly enough infer that Booth's process was something else. His pictures were finished with great nicety, and he is particularly severe on the "artistic daubs," which he declares have been the origin of the "wink of wisdom" connoisseurs are forced to give in peeping through their hands. In connection with artistic daubs he tells us of "a person of Birmingham" who "acquired a considerable fortune by indulging a similar mind;" but unless there are circumstances we are not acquainted with in the factory at Soho, the reference can hardly be to the only rival he can have in his own line—the artist Eginton.

Neither Booth nor Eginton patented the invention they practised. Booth insists on taking us into his confidence and telling us frankly why. He says it has been a matter of "surprise to some people" that he has not. Had he given no reason we might perhaps have shared in the "surprise." As it is we find it difficult to reconcile the reason with the facts. He says that if he had patented his invention he must have disclosed the secret in his specification; but unless there were two Joseph Booths, both artists of Lewisham, flourishing at the same time, our friend Joseph must excuse us for being very imperfectly satisfied with the explanation. A Joseph Booth, of Lewisham, artist, if we can trust the record of the Office of the Great Seal, obtained in the year 1792, Letters-Patent for an invention, the nature of which he was by a special Act of Parliament (32 Geo. III. c. lxxiii.) allowed to keep secret. It was for "a machine or apparatus, and certain chemical compositions invented by him, for the purpose of making various kinds of woollen cloths and other articles." I have the specification of the patent (No. 1,888) before me, and I see from it that in pursuance of the act Lord Darnley and a Mr. Nicholson have examined our artist, and certify in an affidavit that the specification, amended at their suggestion, "fully, completely, and accurately describes the whole and every part of such invention and discovery, and the method of using and employing the same for the uses and purposes therein set

forth." We run through the specification, from which the seal of secrecy has long since been removed, and find that whatever "other articles" may have been invented by the patentee, he has said no word that can be construed into the description of any method of chemically and mechanically painting in oil.

Booth's pamphlet concludes with an address to his patrons. He tells them that "he has lately refused a very advantageous offer made by a foreign power," for the establishment of his art "in a place where he was assured of the greatest success." But no terms "can induce him to leave his native country in expectation of the patronage and protection of foreigners, more especially as he is well assured he will be amply rewarded in throwing himself for support in his undertaking on that candor and liberality which have ever been the characteristic of Britons. He has already received the most flattering proof of the justness of his sentiments on this head, on an application made above a year ago to one of the first men the world has produced in his line. Suffice it to say, that Sir Joshua Reynolds, with a protecting hand, generously assisted him in his invention in a manner truly great and noble. . . . Mr. West, too, with a mind superior to professional prejudices, indulged the artist with the use of one of his pictures ('Jupiter and Europa'), from which he has taken the first piece which he dares submit to the inspection of the public, numbers of former productions having been laid aside from the many improvements which the art has undergone within the last year." In the title-page of this curious work, we read that a specimen of the Art "may now be inspected at the inventor's house near Golden Square, admittance *gratis*, price of the pamphlet 1s."—a form of invitation not unknown to patrons of art of the present day.

Four years elapse before we catch sight of our artist friend again. He is evidently prospering. His society has been formed, and Pollaplasiasmos has become Polygraphy; the very title, as I pointed out just now, adopted for Eginton's process at Soho. The lapse of time has left the artist as didactic, but unfortunately as uncommunicative (about picture painting) as ever. He is now publishing a second pamphlet; it is without date, but assigned

by the learned in such matters in the British Museum to 1788. He pens this time—

"An Address to the public on the Polygraphic Art, or the copying and multiplying pictures in oil colors, by a chemical and mechanical process, the invention of Mr. Joseph Booth, portrait painter.

"Utque artes pariat Solertia nutriat usus."

We have no space left to record the wanderings of our hero in his second manifesto, in which he praises his art as "having a tendency to strengthen religious principles and conceptions, and to improve the morals of the people. . . . A taste for the fine arts," he observes—and the sentiment was probably a novelty then—"is incompatible with ferocity of manners. It even restrains the fierceness of war. . . . Painting in particular is favorable to virtue. . . ." and so on. The man is incorrigible as ever, and we lay down the second pamphlet, like the first, without having in any way improved our knowledge of the process he invented.

This source of information failing us, we revert naturally to the neighborhood of Soho. So long as the Heathfield workroom remained closed, there was ground of course for hope that within it would be found the very instruments that had been used in the manufacture of the pictures. The idea must indeed have impressed itself with singular force upon the minds of those interested in the matter, when we find a writer, usually so careful as Mr. Smiles,* including in the list of articles which presented themselves to those who at last, on the 4th May, 1862, got access to the chamber—an "extemporised camera!" Unhappily to the few persons who (among them were Sir Francis Smith and Mr. Woodcroft) entered the workroom so long closed, no such object was apparent, carefully as every nook and corner of the premises was searched. The only optical apparatus to be seen were three or four lenses with paper mounts, and these were lying about in drawers.

With the unsuccessful search in Watt's workroom the attempts to collect evidence in the neighborhood of Soho seem to have ceased, and the photographic world, in which the rumored discovery had made a stir, prepared for a discussion over what materials had come to light. On the first night of its winter session in 1863, the rooms of

the London Photographic Society were crowded, and Sir Francis made his statement, which it is needless to say was listened to with the deepest interest. When the sensational part of it had been winnowed out of the story, the modest tone in which the speculations of the speaker had been put forward earned for him perhaps still heartier admiration. The evidence in the shape of products of the Lost Art was of course subjected to the severest scrutiny. The more the paper pictures were examined the more wonderful and extraordinary they appeared. As if to destroy at a blow the theories of those who maintained that they were simply copper-plate engravings colored after some expeditious method, it was found that the whole picture could be wiped out with a sponge as a boy's sums are rubbed off a slate! The *British Journal of Photography*, one of the highest authorities I suppose upon the matter, was obliged some days after the meeting to content itself with thus summing up the *status* of the pictures that had been found: "There is no direct evidence proving them to have been produced by photography. On the other hand, there is nothing which militates against such a supposition, and several arguments in favor of it." The paper of one ("The Stratonice") furnished a strong probability of the antiquity of the picture. It was shown by a letter from the present proprietors of the mills where it was manufactured that it must have been made prior to 1794.

The general discussion at the Society's meeting was led off by Dr. Diamond, who cited the opinion of one of our most competent authorities, Mr. William Smith, deputy chairman of the National Portrait Gallery, to the effect that the pictures "were not produced either by engraving, drawing or painting, or by any method of which he had any knowledge. They bore no traces of any handwork whatever." Much interest was expressed on the production by the speaker of a Catalogue of the exhibition of Joseph Booth and the Polygraphic Society, at 381, Strand. The rest of their discussion was hardly profitable, the critics selecting for their attacks precisely those points of the story on which it was exceptionally strong. One gentleman, who objected that in the early days of photography "no lens existed capable of producing a sharp impression," found apparently no one at the meeting to remove his doubts. He

* Lives of Boulton and Watt.

receives a reply, however, a few days after, in the *British Journal of Photography*, somewhat in the style of the Yorkshireman who accounted for a particular phenomenon by "dooting the fact." The answer, the editor says, "is simple; the image is *not* sharp, but presents precisely the appearance that would be anticipated of an uncorrected lens of a particular character, that is to say, if taken by the aid of a quartz spectacle lens (pebble), an instrument very likely to have been used."

The meeting at the Society's rooms by no means exhausted the discussion, and pamphlets had to be exchanged before all parties could receive even imperfect satisfaction. One by Mr. M. P. W. Boulton, (grandson of Matthew Boulton), published in 1865, went far to clear up all the points as to which we can even now feel sure. Adopting a species of argument especially applicable to the case, he made the eye the arbiter in the dispute as to the silver plates, and proved that the "sun picture of old Soho," before 1791, was a daguerreotype of Winsor Green, taken by his aunt, Miss Wilkinson, in 1840. He did this by the simple expedient of appending to his pamphlet a lithograph copy of the picture on the silver plate and a sketch of Winsor Green, taken in 1841. On that point no one doubted more.

"Segnius irritant animos demissa per aures
Quam quæ sunt oculis subjecta fidelibus."

Mr. Boulton expresses himself as adverse to the supposition that the so-called mechanical pictures were photographic. As regards the word "sun pictures," he says, "neither my sisters nor I ever heard this title made use of; but I have found persons who, when at Soho about 1830, heard the pictures there spoken of as 'sun pictures,' and I believe that Mr. Hodgson heard the title used at an earlier period."

The last shot fired by way of controversy was by Mr. George Wallis, of the South Kensington Museum, in the *Art Journal* for 1866, under the title of "The Ghost of an Art Process practised at Soho, near Birmingham, about 1777 to 1780, erroneously supposed to have been Photography." But for the consideration of this and many other interesting speculations that have been hazarded on the subject we have no space left.

I think I have now said all that is needful to induce those interested in curiosities of invention to look into this singu-

lar matter for themselves. So far as concerns the process by which the pictures were produced, we are perplexed rather than assisted by the repeated "explanations" of discordant experts. If it was merely mechanical reproduction of any given subject, one can fancy how the good people of Soho chuckled over the letter (which still survives) of one of their London customers begging the next pictures they ordered might be painted "in a much more masterly style." If they were not, and hand labor was not dispensed with by the art, it seems impossible to understand the delight expressed by Matthew Boulton in one of his letters (1st February, 1781), at having his engine drawings copied by the art "on thick paper, in which case the drawing is reversed, and is so perfect as not to be distinguished from the original." That it was mechanical, or that the outline (and possibly the dead color) was secured without labour, seems a fair inference from one of Burney's letters, where he is writing about a picture that would seem to have not been well adapted to the process. "Your idea was perfectly right," he says, "about 'Telemachus' had it been mechanized, but at present the outline and the dead color take nearly half the time." If the art was worked secretly its concealment was possibly due to much the same course of proceeding on the part of those who worked it, as that described by Edgar Poe in his famous story of the "The Purloined Letter." Had it been known to be a secret, it seems strange that it escaped the attention of the "Eavesdroppers" about Soho, with whose wiles Mr. Smiles makes us acquainted in his charming little sketch of the way-side inn at Handsworth; and if—but we might lose ourselves to any depth in conjecture on this curious matter, with regard to which those most competent to decide agree only in differing. Without staying to draw the moral, or morals,—for there are morals in the story for all sorts and conditions of men from dealers in waste paper to Ministers of State,—I would recommend the reader simply to visit the little chamber of Sir Francis Smith, at the Patent Museum of South Kensington, see the pictures which have been actually found, and decide for himself upon what Mr. Wallis very happily christened while his judgment was in suspense, "An Art mystery awaiting a solution."—*Fortnightly Review*.

SALMON P. CHASE.

BY THE EDITOR.

SALMON PORTLAND CHASE, whose impressive countenance looks out from our frontispiece this month, was one of the greatest men of what was perhaps the greatest epoch of our national history; but the more striking portions of his career were so recent, and its incidents are so familiar, doubtless, to the great majority of our readers, that only the briefest sketch of his life will be attempted here.

Though identified in his public career with the West, Mr. Chase was a New-Englander, a native of Cornish, New-Hampshire, where he was born on the 13th of January, 1808. His ancestors on the father's side were English, and on the mother's side Scotch. Several members of the family in the previous generation attained some distinction in public life; one of his uncles having been a Senator of the United States and Chief Justice of Vermont; another, a leader of the bar in Portland; while a third was bishop of the Protestant Episcopal Church in the diocese of Ohio. His father, however, was a farmer on a moderate scale, remaining for a time at the old homestead in Cornish and subsequently removing to Keene. During the war of 1812 he embarked in an enterprise which came to ruin as soon as the war ended, and soon afterwards he died suddenly, leaving his family in straitened circumstances. The young Salmon was nevertheless sent to school at Windsor, Vermont, and at the age of twelve was committed to the care of his uncle, the Bishop, who had offered to provide for his education. A journey to Ohio in those days was a serious affair; but the boy was intrusted to the care of an elder brother, who with Henry R. Schoolcraft was starting to join Gen. Cass's expedition to the Upper Mississippi. The Bishop lived at Worthington, near Columbus, and young Chase was obliged to remain for several weeks at Cleveland before he found a chance of completing the journey. During this time he earned his living by ferrying passengers across the Cuyahoga in a canoe. At Worthington he divided his time between hard work on the Bishop's farm and hard study in the Bishop's academy. Thence he accompanied his

uncle to a rather more ambitious institution at Cincinnati, and remained there until, in 1823, Bishop Chase went to Europe to raise funds for the establishment of Kenyon College. Salmon then returned to New-Hampshire, taught school for a little while, studied for a little while at Royalton, Vermont, entered Dartmouth College in the junior class in 1824, and was graduated two years later at the age of 18. With his diploma and a few dollars he went to Washington and advertised in *The National Intelligencer* his intention to teach "a select classical school;" but he got no pupils, and his money rapidly disappeared. In despair he applied to his uncle, the Senator, for a clerkship in the Treasury. "If you want half a dollar to buy a spade and go dig for a living," was the answer, "I will give it to you, but I will not help you to a place under Government. I got an appointment for a nephew once, and it ruined him." At last he obtained charge of a school from which the proprietor was about to retire, and which numbered among its patrons Henry Clay, William Wirt, and other distinguished men, and during his leisure hours he pursued the study of law under Mr. Wirt's auspices. His entrance into the legal profession was not auspicious. He passed his examination in 1830 with difficulty, and it is said that he was not rejected only because he intended to practice at Cincinnati, where any sort of a lawyer was supposed at that time to be good enough. His only client for a long time was a man who paid him half a dollar for drawing an agreement, and came back a few days after to borrow the half dollar. In his first argument before a Federal court he broke down. Nevertheless he soon made his way. He had settled at Cincinnati immediately after his admission to the bar, and while waiting for practice he prepared an edition of the statutes of Ohio, with notes and a historical introduction, which brought him into notice, and as early as 1834 he was appointed solicitor of the Bank of the United States in Cincinnati.

About this time Mr. Chase began to take a prominent part in political affairs,

and soon became a leader in all the agitations and struggles which led to the formation of the Free Soil and subsequently of the Republican party. At first he acted with the Democratic party, and in 1849, by a combination of Democratic and Free Soil votes, was elected Senator of the United States from Ohio. He severed his connection with that party in 1852, and in 1855 was elected Governor of Ohio by the Republicans and Know Nothings, being also reelected by an overwhelming majority in 1856.

At the Chicago Convention in 1860, Mr. Chase was one of the favorite candidates, and when President Lincoln formed his cabinet, the former rival was selected as Secretary of the Treasury. In this position Mr. Chase achieved his greatest work. "History," says a recent writer, "will rate as one of the greatest finance ministers of modern times the man who brought our country through the unexampled trial of the war, without serious embarrassment and with unshaken credit."

In June, 1864, Mr. Chase resigned the

Secretaryship of the Treasury, and in October of the same year he was appointed Chief Justice of the United States, as successor to Judge Roger B. Taney. He performed the duties of this high office until his death, but his health had been broken by his four years of excessive work during the war, and his life from this time on was a losing struggle with disease. He bore up bravely and hopefully, but his strength gradually ebbed away until in the summer of 1870 he was stricken with paralysis. Rallying from this, he made a trip to the West which seemed to benefit him, but on the cars while returning East he was again stricken down. The spring of 1872 found him once more at his post in Washington, where he remained until June, and was in New-York City on his way to his daughter's home in Rhode Island when the fatal stroke came on May 8th. He died suddenly at the last, and his death, following so closely upon that of his great fellow-worker, Seward, made a profound impression upon the country.

LITERARY NOTICES.

OUTLINES OF GERMAN LITERATURE. By Joseph Gostwick and Robert Harrison. New-York: Holt & Williams. 1873.

This is a very valuable and even fascinating contribution to the study of that German literature which has had such a profound influence on nearly every branch of modern thought, but which remains comparatively unknown to the vast majority of English readers. The authors are especially well adapted for their work, Mr. Gostwick being the author of a favorably known "Hand-book of American Literature," and Mr. Harrison being librarian of the London Library; and their review is very comprehensive and satisfactorily complete. It begins with the "Nibelungen Lied," of which it gives an excellent summary, pursues the early or romantic period of Teutonic literature, and tracing the literary outlines of the middle ages, brings us progressively up to our own times.

The authors have not neglected any portion of their theme; and, besides the successive poetic productions, Tauler's sermons, Von Hutten's epistles, and Luther's works, the theologians and the hymn-writers are all brought under review. Luther's relation to his country's language and literature is very clearly pointed out; and for the eighteenth century, when the classical period began, the positions of Wolf and Winckelmann,

of Klopstock, Lessing, and Wieland are carefully indicated. A liberal space is devoted to Goethe and Schiller; and throughout the book, admirable translations are given of the most classical, famous, and characteristic portions of the works brought under review. The volume may be opened anywhere with interest, and the reader will find lucid exposition and commentary, well-written biographical sketches, accurate if not sparkling translation, and sound scholarship. Even modern German philosophy is not neglected; and Kant, Schelling, Hegel, Fichte, Schopenhauer, and others are summarized with the view of giving even the ordinary reader some idea at least of the different positions held by these well-known metaphysicians. No attempt is made to decide their merits or to discuss their philosophy; but their systems are presented for the most part in their own words and without comment.

The "Outlines," from beginning to end, reveal conscientious and painstaking industry, and excellent choice of material; and we know of no other work on these topics where any thing like the same amount of information can be obtained in so convenient and pleasant a manner.

FOODS. By Edward Smith, M.D. International Scientific Series. New-York: D. Appleton & Co.

This third volume of the "International Scien-

tific Series" maintains the high character marked out by the two previous issues, and is of even greater practical utility. No subject could be more important or of more universal interest, and medical and literary quacks have so befogged the public mind about it of late that it is quite time for science to undertake its treatment. We think Dr. Smith's work will be accepted as entirely satisfactory both to the scientific student and the practical housekeeper. Under a simple classification into solid, liquid, and gaseous, and a subdivision of these into nitrogenous and non-nitrogenous, it treats of every food known to man, not excepting water and atmospheric air; explaining their properties, tracing their effects when absorbed into the animal economy, and indicating their relation to all the other foods with which they are usually associated. The author has no hobby to ride or theory to enforce; he deals with his subject in a purely scientific spirit, and the conclusions he puts down are the demonstrated results of experimental analysis and rigid induction. It is refreshing to see a subject on which there has been so much crude and reckless theorizing, reclaimed for its proper position among the practical sciences; and the wide circulation which Dr. Smith's treatise deserves would at least pave the way for more intelligent feeding than Americans are now accustomed to put up with.

Dr. Smith has in hand a supplementary volume on "Diets," which will apply the principles laid down in the present work, and which will probably be even more directly useful.

A PAIR OF BLUE EYES. By Thomas Hardy. Leisure Hour Series. New-York: *Henry Holt & Co.*

Mr. Hardy, the author of this story, has written but three books in all, and those in pretty rapid succession; yet we think it can be said of him already that he has earned a distinct place for himself in the first rank of contemporary novelists. Each of his novels has shown a marked advance of both creative power and literary skill, and "A Pair of Blue Eyes" is not only much the best of recent English novels, but will bear comparison with the standard works of standard authors in this field. Its merits, moreover, are not of that type with which readers of later English fiction are familiar, consisting of a more or less close approximation to some one of the recognized literary masters. It is neither imitative nor refractive (if we may be allowed to borrow a word from the scientific vocabulary), but both in conception and in literary treatment is entirely individual and characteristic. More than most novels, even of the better sort, it can be regarded simply as a work of art; for the author has no theory to propound or moral to exemplify, and contents himself in his work with merely holding the mirror up to the more picturesque aspects of nature and human nature. It is only in the selection of these aspects that his own

personality comes in, and "A Pair of Blue Eyes," like his previous story, "Under the Greenwood Tree," reveals a singularly poetic, receptive, and subjective temperament.

We have not space to analyze the story, but we may say that the heroine—the owner of the pair of blue eyes—is inexpressibly charming, and charming by means of just those superlatively feminine qualities which have confused the judgments and bewildered the consciences of men in all ages. The magic of her personality, indeed, has bewitched her own creator; for, while we can not but condemn a character whose end, as depicted here, is the natural and necessary result of its previous manifestations, it can not be denied that Mr. Hardy carries all our sympathies with her from first to last. Henry Knight, the essayist and reviewer, is a new accession to the portrait gallery of fiction; Mr. Swancourt, the typical rector who is wordly-minded as any man-about-town, though not in a vicious way, is an entirely fresh outcome of a familiar pattern; and all the characters, in fact, from day-laborer to Lord Luxellian, are drawn with the skill of a master and the precision of an artist.

For the rest, Mr. Hardy's literary style is singularly graceful and spirited; his descriptions of natural scenery are fine, sympathetic, and various; and in incidental touches here and there, without display or affectation, he reveals a disciplined mind and wide general acquirements.

CRITIQUES AND ADDRESSES. By T. H. Huxley, LL.D., F.R.S. New-York: *D. Appleton & Co.* 1873.

This volume, like the "Lay Sermons, Addresses, and Lectures" published two or three years ago, contains the addresses which Prof. Huxley has delivered since 1870, together with the more important papers that he has contributed to the various magazines. It deals, of course, chiefly with scientific and philosophical questions, but also, to greater extent than usual, with those pertaining to education. The author's official connection with the London School Board gives these latter an especially practical character, and it need not be said that they are among the most valuable of recent contributions to the discussion of popular education from the scientific point of view. Every one interested in the subject should read them, for though they were called forth by local and temporary incidents, they discuss aspects of the subject which are of all but universal application and importance.

In the preface, Professor Huxley crosses swords with some of his critics—among them Mr. Herbert Spencer and Mr. Mivart—and amplifies some of the points which are touched upon in the succeeding papers.

"THE PEOPLE'S PICTORIAL ATLAS" (New-York: J. David Williams) may truthfully be said to meet a "long-felt want." Both in contents and

in price it is essentially an atlas for the people, and it ought to find its way into every household where even the news of the day is read with intelligence. We have examined it carefully, and there is no doubt in our mind that for popular use—for the use of that great majority of readers who want only the most important information in the briefest possible space, in the most convenient shape, and at the lowest possible price—it is much the best atlas that we have yet seen. The maps are for the most part excellent, and the reading matter combines the advantages of the cyclopedia and the ordinary atlas; while nothing comparable to it in the way of cheapness has hitherto been published. Sold only by subscription.

THE "ALUMNI RECORD OF WESLEYAN UNIVERSITY, OF MIDDLETOWN, CT.," is a handsome pamphlet of 308 pages, forming an admirable pioneer in a work which ought to be performed for every one of our leading educational institutions. It gives not only a complete history of Wesleyan University, but a biographical sketch in brief of each one of its alumni, containing an epitome of his career since leaving the college. Such a record is not merely of interest to Wesleyan's alumni and patrons, but is the sort of raw material out of which the Social Science of the future will construct its most lasting and most important principles. "Wesleyan" is comparatively a new institution, and its older rivals should act upon this example.

FOREIGN LITERARY NOTES.

MR. MATTHEW ARNOLD is about to bring out a work on Higher Schools and Universities of Germany.

LORD RAVENSWORTH, who has translated the "Æneid" of Virgil, is about to publish (in an appendix) an estimate of the lapse of time necessary for the action and events of the last six books of the poem.

M. LITTRÉ's great "Dictionnaire de la Langue Française" is being re-issued, in a hundred and ten weekly parts, at a franc each. The work is, of course, stereotyped, and the publishers are right in trying to extend its circulation as widely as possible.

MR. BLANCHARD JERROLD is engaged, with the special sanction of the Empress Eugénie, on "The Life and Times of Napoleon the Third," the first part of which, illustrated with portraits from the family collection, will appear about the end of the year.

THE French Academy has just awarded one of its annual grand prizes to M. Edouard Fournier for his writings on the stage in France prior to Molière's time. M. Fournier obtained, six years ago, the Halphen prize for his general historical works.

THE number of students at the University of Berlin continues to decline rapidly. In the winter session of 1871-72, according to the *Allgemeine Zeitung*, the number of matriculated students was 2,603; in the summer of 1872, 1,990; in the winter of 1872-73, 1,918; and in the present summer, only 1,590.

THE Spanish novelist, Señor Perez Galdós, has in the press an original historical novel, entitled, "La Corte de Carlos IV." ("The Court of Charles the Fourth"). It is said that the personages who influenced Spanish politics at that period, 1788 to 1808, are drawn with historical accuracy, and with a masterly hand.

A NEW fac-simile of the 1623 Folio of Shakespeare's Plays, under the direct supervision of Mr. Howard Staunton, will be shortly issued in London. The fac-simile is a reproduction of the splendid copy in the library of the Earl of Ellesmere, at Bridgewater House; supplemented, where any pages of that volume are defective, by the fine copy in the Grenville Library of the British Museum.

AFTER thirty years' planning and altering, the Turks are slowly and steadily getting their University system into order. They first started at the top with a Constantinople University, but they had the sense to abandon the buildings, and devote their energies to primary and secondary education. They have just held an examination for the Bachelor of Science degree, at the Imperial Lyceum, at Galata Serai, when eleven passed, one Turk, two Greeks, and eight Armenians. The latter, from the part they are taking in the industrial development of the country, best appreciate the value of scientific instruction.

On the 9th of July died, in Paris, M. Techener, the well-known bookseller, who, since 1817, was the successful discoverer of many scarce and curious books, autographs, and palæographical works. Once in possession of a literary rarity, he could scarcely be induced to part with it, and often purposely put on it an extravagant price, to prevent purchasers depriving him of the custody of his cherished treasure. In 1834 M. Techener started the *Bulletin du Bibliophile*, a monthly periodical, well known in the literary world, and in which he wrote some interesting bibliographical papers. As a publisher we have to thank him for elegant and accurate reprints of a great many curious books which otherwise would have been lost or undeservedly forgotten.

DR. CHAPLIN writes to the *Athenæum* from Jerusalem, June 26, 1873:—"The workmen engaged in repairing the dome of the rock, recently uncovered the rafters of the roof of the outer corridor, and discovered upon one of them some Cufic writing. It is very neatly done, in black paint, and is in remarkably good preservation. Its purport is that it (what?) was made for Jafr El-Mukhlader, Emir of the faithful, by the order of

El-Saïdy, and bears the date 305. My friend, the learned Sheikh Assad, tells me that El-Saïdy was the mother of Jafr, and that she is mentioned in the Hayat El-Jewarah. Jafr died in 310 of the Mohammedan era. Copies of the inscription are being sent to the office of the Palestine Exploration Fund, where those interested in the matter may see them."

THE history of the Revolution of 1848 has until now been told only by actors of the drama, such as MM. Louis Blanc, Lamartine, Garnier-Pagès, &c. It, of course, was not to be expected that they should give us narratives perfectly free from personal bias. Now, however, a young *debutant* in the literary world, M. H. Gradis, has produced a complete 'History of 1848,' published in Paris, by Michel Levy. The moment is scarcely well chosen for impartiality. It is impossible, indeed, not to compare 1872 with 1848, and not to side with one or other of the great political parties which divide France. M. Gradis's hero is Lamartine, the unconscious conspirator against the monarchy of July, to whom the knowing ones MM. Ledru-Rollin, Louis Blanc, &c., are pitilessly sacrificed.

EVERYBODY, says the *Saturday Review*, has a tolerably distinct idea of Dr. Johnson's style, but this does not prove that the world has an equally distinct acquaintance with the writings on which that idea is founded. The *Rambler* is talked of, laughed at, treated as part of the common stock of literature which we know as Englishmen. But is it read? As we much doubt whether it is, we are glad to see a new edition (Tegg) which may find its way into libraries, and give the rising generation an opportunity of acquainting itself at first hand with the thoughts and periods of the last century's sage—not at all like the moralist of our day, but a preacher notwithstanding, who had a way of embodying moralities in very impressive and lasting language. No style suits Johnson's vein of thought but his own. In his own words, his reflections on life, without starting any new theories, make their way to our heart and understanding, not merely as abstractions, but weighted with the force and vividness of a very extraordinary nature. No writing can possibly be more characteristic of the writer than these essays of the *Rambler*. As far as he could show himself in monologue they show him. His sonorous periods take sound and life as we read, and some echoes reach us of the "strong emphatic voice" which was Boswell's dearest music. That precision and pomp of diction which distinguished his talk from all others is here immortalized in print. As we read these balanced sentences and listen to their rhythm we perceive that he thought in periods. The vocabulary of our language lay open to him—not simply as a figure of speech, for he was engaged upon his Dictionary during the whole time the *Rambler* was coming out—the longest words pressing forward for selection as

most consonant with voice and manner, and with that vast bulk of body and mind which dominates over the reader as a presence. It would have cost Johnson a most intolerable amount of labor to simplify his style. It is called labored, but, as we know that he composed at full speed, that these essays were "struck off at a heat with rapid exertion," and that he rarely corrected his first manuscript, it only means that the style natural to him is laborious to imitators, and ill adapted for a model.

SCIENCE AND ART.

AMERICAN PREPARATIONS FOR THE APPROACHING TRANSIT.—The following is extracted from a letter addressed by Rear-Admiral Sands to the Astronomer Royal on the subject of American preparations for observing the transit of 1874: "The favorable Northern stations will all be selected on the coast of China, Japan, and Siberia; one probably at Wladiwostok (Lat. 43° 7'; Long. Sh. 48m.); one at or near Yokohama; one near Peking, or between Peking and the coast; and the fourth somewhere in Japan, China, or the adjacent islands. In the Southern hemisphere satisfactory stations are much more difficult to find. Our choice seems to be confined to Kerguelen Land, Tasmania, Southern New Zealand, and Auckland or Chatham Island, subject to the consent of the British Government. The most favorable of these stations is probably Kerguelen Land, which you mention among those you purpose to occupy yourself, and which I believe the Germans also intend to occupy. It is a delicate question whether there are not very grave objections to having so many stations together, the answer to which must mainly depend on whether similar methods of observations are to be employed by the different parties. The force of the objection is greatly diminished by the circumstance that our method of photographing is not to be employed by any other nation. Still the comparative inaccessibility of that point allows me to speak with little confidence of our ability to occupy it. In addition to these photographic stations, it is our wish to comply with your desire that we should occupy a contact station in the Pacific. Here we prefer one of the Sandwich Islands, as distant as possible from the point which you may select. The objection to occupying a station so near yours seems to be counterbalanced by the very favorable conditions of that group, both astronomically and meteorologically, and by its accessibility from our western coast. As both contacts will be visible from all the photographic stations, it is intended to observe them with 5-inch equatorials, with clock-work and micrometer for measuring cusps, one of which will be sent to each station. As the factor for 'ingress accelerated' will be about as great at Wladiwostok and at Yokohama as it will be at Tahiti, it does not seem necessary to occupy the latter sta-

tion in addition, and besides, only one contact can be seen either at Tahiti or Marquesas, while the Asiatic stations are about equally favorable for both contacts. Each station will also be furnished with a portable transit, accompanied by clock and chronograph, for the determination of local time. This transit will be supplied with a fine spirit-level and declination micrometer for use as a 'zenith telescope.' For longitude, we shall probably depend mainly on occultations of small stars to be observed with the 5-inch telescopes. It is hoped by careful watching to observe eight or ten occultations per month, mostly when the Moon is near her conjunction, and while she is passing the Milky Way. It is believed that occultations are much more free from systematic errors than Moon-culminations. The numerous old determinations of the Transatlantic longitudes by the latter method, most of which may be found in Gould's paper, do not encourage us to rely upon it."

CHANGE IN THE ARRANGEMENTS FOR OBSERVING THE APPROACHING TRANSIT OF VENUS.—The Astronomer Royal has at length yielded to the pressing arguments which have been urged in favor of an extension of the arrangements for observing the approaching transit of Venus. It has for some time been known that Prof. Adams, the discoverer of Neptune, had taken Mr. Proctor's view of the subject; and we believe we are right in saying that Prof. Adams had been for some weeks in correspondence with Mr. Proctor on the one hand and the Astronomer Royal on the other, with the object of effecting a change in the proposed schemes. This correspondence bore fruit at the recent visitation of the Royal Observatory, when Prof. Adams proposed to the Board of Visitors that the Government be requested to provide the means of organising some parties of observers in the southern hemisphere, to employ Halley's method. This was carried unanimously, and the Astronomer Royal expressed his perfect acquiescence in the result. The final decision will rest with the Admiralty and the Government. Thus has been brought to a close, so far at least as scientific resolutions are concerned, a contest which had long been strenuously maintained by argument on one side, and by a somewhat persistent silence on the other.—*Science Review*.

THE NEW MAGNET.—In our last month's notes, we mentioned that Mr. Jamin, of Paris, had discovered a way of largely increasing the power of a magnet. To that brief notice we now add a few particulars. The power of a steel plate increases with its thickness, but not indefinitely. But a plate one inch thick is less powerful than two half-inch plates, and these again than four quarter-inch plates; and the same holds good of further subdivision. Hence it may be said of a magnet—the more plates the more power. Carrying this out, Mr. Jamin makes his magnets of 'ribands' of steel, and diminishes the weight

while increasing the force. The increase is such, that one of his magnets will carry twenty times its own weight, and ere long we may have to announce that this limit has been exceeded.

SUSPENDED ANIMATION.—A few weeks ago a lecture was delivered before the Royal Society, wherein the lecturer, Dr. B. W. Richardson, described experiments in which he had kept animals in a state of suspended animation for many days by the application of certain chemical compounds. The consequent phenomena have been compared with phenomena observed, in a few rare instances, in the human subject after death; and Dr. Richardson gave an account of his various attempts to preserve blood in such a condition that it would restore 'reduced irritability,' which means, restore the phenomena of life. Here is a grand question. In the endeavor to work it out, valuable physiological discoveries may be made, though it may stop short of keeping people alive by artificial blood.

POISONOUS INOCULATION WITH DEAD BLOOD.—The "Lens," in a recent number, quotes M. Davaine's experiments on] this subject. It is well known that medical men are often seriously injured by accidentally cutting themselves with instruments that have been recently used for dissecting purposes. The wounded part swells, and mortification often ensues, necessitating amputation and sometimes causing death. In order to determine the poisonous properties of this putrid blood, M. Davaine communicates the result of several experiments upon rabbits. The liquid used was the blood of an ox that had been ten days slaughtered. This, by subcutaneous injection, he administered to his subjects in varying quantities, obtaining by successive dilutions with water the most infinitesimal attenuations. Killing one animal, he would take its infected blood and force the same into the veins of another, and so on until he reached what he terms the twenty-fifth generation. On this last experiment he says: "Four rabbits received respectively one trillionth, one ten-trillionth, one hundred-trillionth, and one quadrillionth of a drop of blood from a rabbit belonging to the preceding generation that had died from the effects of a one-trillionth dose. Of the four, but one animal died—that which received the one ten-trillionth.—It appears then, that the limit of transmissibility of the poison in the rabbit reaches the one-trillionth part of a drop of decayed blood."

EXPERIMENTS ON A GUILLOTINED SUBJECT.—The French "Gazette Hebdomadaire" contains an account of M. Onimus' experiments, detailed this year to the Paris "Société de Biologie." M. Onimus mentioned that he had had an opportunity to verify several physiological facts on the body of a man who had been guillotined. The external intercostals raise the ribs, the internal intercostals lower them, demonstrating the correctness of Bamberger's theory. The peroneus longus

brings down the internal edge of the foot, at the same time acting to some extent as an extensor and abductor, as Duchenne has shown. The loss of contractility in the muscles takes place in the following order: The muscles of the tongue, the fail to react to electric excitement, though the diaphragm, and those of the face, are the first to masseter holds out a long time; in the limbs the extensors fail before the flexors; the muscles which preserve their excitability longest are those of the trunk. The form of muscular contraction varies as the contractility lessens. It is interesting to remark that the order in which the muscles become inactive is analogous to that of lead-paralysis.

THE IMMENSE COAL-AREA OF THE UNITED STATES.—Professor Hitchcock gives in the "Geological Magazine" a good sketch of the vast coal deposits of America. He states that the total area amounts to 230,659 square miles; no notice being taken of any coals which do not belong to the Carboniferous system. There are many others of commercial importance, as the Triassic of Virginia, the Cretaceous of the Territories west of the Missouri River, an immense amount in California, Alaska, &c. These facts will afford data for those who are interested in estimating the amount of coal in different countries by the number of cubic miles or tons. The statements are too brief to permit any notice of the best or of the inferior coal.

RELICS OF A STONE-AGE HOMESTEAD.—Dr. Charles C. Abbot has written an able paper on this subject in the "American Naturalist" for May, in which he describes some very interesting relics recently found by him. These were met with in a circumscribed spot of about thirty feet in diameter, and some twenty inches below the surface of the ground. The floor of this "homestead," as we have called it, was very hard and compact; the soil being of a darker color than the superincumbent earth, and well mixed with small oval gravel stones, of a noticeably uniform size. At one side of the nearly circular spot was a well-defined fire-place, marked by a circle of oval white stones, six to eight inches in length, and half that in thickness. Within this circle was a layer of ashes and charcoal, seven inches deep in the centre, and three at the margin of the fire-place. This coal and ash deposit showed, on careful examination, a considerable percentage of minute fragments of mussel shell, and of small fragments of bones, too much splintered to identify, but apparently the long bones of wading birds and of the larger fishes. Several other remains were also found, and have been well described by the author, who, in conclusion, asked the following question:—"Whence came the people who once occupied this spot, and left these abundant traces of their sojourn here? Marking the degree of civilisation, or rather, of its absence, as estimated by these relics, does it, indeed, seem possible,

as sketched by Haeckel, that from hypothetical Lemuria, in the Indian Ocean, a being worthy *then* to be called a man, could finally, after many ages, reach North-west America, and then cross our broad continent, to reach the Atlantic coast, in a state of advancement only equal to the production of such rude stone implements as we have described? We do not doubt the correctness of the theory of the evolution of man from creatures not men, but that the ancestors of the American red-skin lived nearer home than the Indian Ocean, we cannot but think."

HABITS OF ANTS DISPLAYING CONSIDERABLE INTELLIGENCE.—Mr. Darwin has received a letter from J. D. Hague, which, as it contains facts of interest, he has sent to "Nature" for publication. Among other points of interest in the communication is the following account:—"One day I observed a number of ants, perhaps thirty or forty, on the shelf at the foot of the vase. Thinking to kill them I struck them lightly with the end of my finger, killing some and disabling the rest. The effect of this was immediate and unexpected. As soon as those ants that were approaching arrived near to where their fellows lay dead and suffering, they turned and fled with all possible haste. In half an hour the wall above the mantelshelf was cleared of ants. During the space of an hour or two the colony from below continued to ascend, until reaching the lower bevelled edge of the shelf, at which point the more timid individuals, although unable to see the vase, somehow became aware of trouble and turned about without further investigation; while the more daring advanced hesitatingly just to the upper edge of the shelf, where, extending their antennæ and stretching their necks, they seemed to peep cautiously over the edge until beholding their suffering companions, when they too turned and followed the others, expressing by their behavior great excitement and terror. An hour or two later the path or trail leading from the lower colony to the vase was almost entirely free from ants. I killed one or two ants on their path, striking them with my finger, but leaving no visible trace. The effect of this was that as soon as an ant ascending towards the shelf reached the spot where one had been killed, it gave signs immediately of great disturbance, and returned directly at the highest speed possible. A curious and invariable feature of their behavior was, that when such an ant, returning in fright, met another approaching, the two would always communicate, but each would pursue its own way: the second ant continuing its journey to the spot where the first had turned about, and then following that example."

ARE HOT-AIR STOVES INJURIOUS TO HEALTH?—This question is answered by the "Scientific Press," of San Francisco, which alleges that they are when made of cast-iron. It says, "Furnaces for heating dwellings should never be made of

cast-iron, as is generally the case, for the reason that the unhealthy gases of combustion—carbonic acid and carbonic oxide—readily permeate such iron when hot, and are thus distributed through the dwelling to the great detriment of health. The furnace should be made of wrought iron exclusively—boiler iron, through which, when properly put together, not a trace of those deleterious gases passes. The expense is greater, but not sufficient to outweigh the health consideration. Wrought-iron furnaces are largely supplying the place of cast-iron ones in our Eastern cities. In cold countries, especially, this matter, as a sanitary question, rises to great importance; and, indeed, it is quite time that more regard was paid to the character of the air we breathe in our dwellings, school-rooms, and public buildings."

THE LEMURS NOT RELATED TO THE APES.—Professor Milne Edwards has made an important discovery. It seems that he has prosecuted an extensive series of observations on "The Embryology of the Lemurians and the zoological affinities of those animals;" and he finds that the placental system differs so widely from that of the simia, with which they have been supposed to present very close relationships, that he is of opinion the lemurs should take an intermediate, but wholly distinct, place between monkeys and carnivores.

FUNGI IN THE EAR.—Since the year 1844, when the attention of physicians was first called to the subject, the growth of minute fungi in the ear has been reported to be a common cause of disease of that part. The meatus, canals, and tympanum are sometimes covered with the growth, in the form of white or yellow mould on their surfaces. Professor Seely, of Cincinnati, reports three cases of diseased ear in which he detected the fungus *Aspergillus*. Tinnitus, inflammation, and the accumulation of wax are the attendant symptoms, and the treatment consists in the application of a solution of carbolic acid, five grains to the ounce of water. The *Pacific Medical Journal* expresses the opinion, however, that, as it is found impossible to transplant the ectophytes to a healthy ear by inoculation, they are probably the effects of disease rather than the cause.

VARIETIES.

DR. JOHNSON.—Goldsmith's good-nature suffered him to see nothing of the bear about Johnson but the skin; but the detail of the paws was wanting to perfect the portrait. Certainly, of the existence of the paws Goldsmith must have been conscious; for, with the exception of Boswell, he had been more rudely crushed in their embrace than any of the friends of the doctor. Samuel, indeed, commenced life with the full intention of being *dur* wherever he was. The boy was father of the man. The posture of superiority was the only posture in which he felt at ease. At school

his favorite pastime was to be drawn on the ice by a barefooted lad, who drew him along by a garter attached to his waist. Here is the monarch in miniature.—Doubtless the bare feet of the boy augmented the sense of vassalage so necessary to the spirit of Johnson. In after-life he was drawn about by another slave, called Boswell. At college he directed his efforts to stir up the students against their discipline; to the authorities he could not become superior, but he might hope, perhaps as a demagogue, to share their power. When he was five-and-twenty years old he did precisely what one could suppose Johnson would do: he married a woman aged fifty! He would have, doubtless, called this idle and vicious perversity in another man, and have been mercilessly sarcastic over the mistake of taking a widow when a maid might have been had. Perhaps he hoped to obtain more authority over an old than he could obtain over a young woman. If this were his idea, he did not delay its execution. According to the fashion of those times, the bride and bridegroom set out on horseback for the church; but before they got there, Johnson found it necessary to show his wife, as he afterwards showed his friends, that wherever he was he must be first. Let him tell his own story:—"Sir, she had read the old romances, and had got into her head the fantastical notion that a woman of spirit should use her lover like a dog. So, sir, at first she told me that I rode too fast, and she could not keep up with me, and when I rode a little slower she passed me, and complained that I lagged behind. I was not to be made the slave of caprice, and I resolved to begin as I meant to end. I therefore pushed on briskly, until I was fairly out of sight. The road lay between two hedges, so that I was sure she could not miss it. When she did, I observed her to be in tears." His marriage, his affection, his admiration for his wife were perfectly in accord with his character. If we may believe Garrick, Mrs. Porter was stout and old, with swelling bosoms such as Fielding loved to write of, and fat cheeks whose dimensions she exaggerated by a thick coating of paint. She had an undue partiality for strong waters. Her voice was loud; her walk was a swagger; she was gross in her tastes, affected in her behavior, and flaring in her dress. Either Johnson was too proud or too blind to see his mistake; for he would talk of her beauty as Congreve talked of the charms of Mrs. Bracegirdle; he contrived endearing appellations for her; he had the highest respect for her judgment; and when she died, mourned her with a constancy and vehemence of grief that throughout his long life suffered no abatement. Though they often quarreled, there is no doubt that they were not more unhappy together than most married people are. At all events they were well matched. To any other man but Johnson, her whims, her habits, her tastes, her person, the abundant peculiarities or mental infirmities which are generated by old age, would have been ex-

trely distasteful; but Johnson also had habits and tastes which, if they were more original, were certainly not less disagreeable than hers. At table he was singularly gross in his manners and offensive in his choice. There were periods probably when her appetite might have deserted her; when, with face as yellow as her cheeks would allow it to become, she could only watch him with amazement and disgust. He would pour oyster-sauce over plum-pudding, and allow the melted butter to run from his toast into his chocolate. His favorite dish was a veal-pie sweetened with sugar, or stuffed with plums; but hardly less choice in his eyes was the red rind of a salt-buttock of beef, or a leg of pork boiled until the flesh fell in rags from the bone. He did not eat; he gorged. He could devour at a sitting as much as would nourish two whales. He would masticate his food with the energy and fervor with which he declaimed; the veins would stand out upon his temples, and the perspiration pour from his forehead. Nor was his eating the most formidable of his habits. His gesticulations were often so excessive and uncontrollable that he would twitch the shoes off ladies' feet, sweep the salt-boxes from the table, or cause a general confusion by half tearing off the tablecloth. He threw open windows on the bleakest December days, and would stand meditatively in the cold draught whilst those in the room crept for shelter behind the screen, or into the fender for warmth. His behavior in the streets was equally surprising. As he passed along he would knock loads off porters' backs, and walk on in happy unconsciousness of the mischief he had done: nor would the sufferers, as they surveyed the burly form rolling from them in an outline not unlike that of the back view of an elephant, dare to pursue him. His march seemed to be performed by the wagging of his head and the contortions of his body rather than by the movement of his feet. Crowds would collect to watch him. He would touch the street posts as he passed with superstitious precision, and if he omitted one, he would retrace his steps that the queer ceremony might be more punctually gone through. At intervals he was seized with cramp or convulsion, and would dance about the pavement to the consternation or merriment of the passengers.—*Colburn's New Monthly Magazine*.

MUSCULAR STRENGTH OF INSECTS.—M. Félix Plateau, a young Belgian naturalist, and a son of the celebrated physician, has lately tried some very delicate experiments to measure the muscular strength of insects, as others have done with man and the horse. The strength of the last two is estimated by the aid of a machine called a dynamometer, where the tension of a spring is counterbalanced by an effort exercised for a very short time. A man, it is found, has a power of traction equal to five sixths of his weight; a horse, only the half or two thirds of his weight; but this is

very small in comparison with the strength of insects, many of which can draw forty times that amount. The way in which M. Plateau has measured these powers is ingenious. He harnessed the insect by a horizontal thread, which was passed over a light movable pulley; to this was attached a balance loaded with a few grains of sand. To prevent the insect turning aside, he made it walk between two bars of glass on a board covered with muslin, so as to afford a rough surface; exciting it forward, he gradually poured fresh sand into the balance until it refused to advance farther; the sand and the insect were then weighed, and the experiment was repeated three times, in order to arrive at a correct conclusion as to the greatest effort that each could make. The tables which give the results of these trials seem clearly to demonstrate that in the same group of insects the lightest and smallest possess the greatest strength; or that the relative force is in inverse ratio to the weight. This law applies also to the experiments in flying and pushing, as well as to drawing. This law, assuredly very curious and interesting in the economy of nature, has been confirmed by trying a dozen individuals of various species, in order to obtain results more approaching to the truth. These have been fully successful in confirming previous experience,—for example, the drone is four times the weight of the bee, yet it can only drag a weight fifteen times greater than its own; whilst the bee easily draws twenty-three or twenty-four times its own bulk. In flying, it can raise a weight very little inferior to its own; whilst the drone can only transport in this manner half its own weight. The law in question appears also to apply not only to the species which belong to the same entomological subdivision, but in a certain measure to the entire class of insects. It is true that if the species examined are arranged by the increasing order of their weight, the corresponding relations which express their relative force are not always exactly progressive. There are exceptions, which may be explained by the difference of structure. The law holds good if they are divided into three groups, comprising, respectively, the lightest insects, those of a middle size, and the heaviest. In this way the relative force is represented for the first group by twenty-six; for the second, by nineteen; for the last, by nine. This relates only to the power of traction; if that in flying be taken into consideration, the lightest can far surpass the heaviest; the first being equal to one and one third; the last is but one half. The strongest insects appear to be those so familiar to the naturalist, which live on lilies and roses, such as the *Crioceræ* and *Trichies*. These little beings can draw a weight about forty times superior to their own, and one, an athlete of the tribe, drew sixty-seven times its own weight. A small beetle of the tribe *anomale* has executed the same feat. Another more remarkable fact is related of a horn-beetle, which held between its mandibles, alternately raising and

lowering its head and breast, a rod of thirty centimetres long, weighing four hundred grammes; its own weight was but two grammes. At the side of this insect, what are the acrobats who can carry a table between their teeth! Such examples show to what an extent insects are superior to the larger animals in the strength of their muscles. Dry and nervous, they can, in proportion to themselves, move mountains. In addition to this, they are ingenious; when an obstacle does not yield to them, they know how to turn it aside. One day, in a garden, a small wasp was trying to raise a caterpillar, which it had just killed. The caterpillar was at least five or six times heavier than its conqueror, which could not gain its end. Six times successively, weary of the war, and despairing of success, it abandoned its prey, and sadly placed itself at some distance. At last a bright idea saved it from its embarrassment: it returned, placed itself across the caterpillar as if on horseback; with its two middle feet it embraced the body of its victim, raised it against its breast, and managed to walk on the four feet which were at liberty; thus it soon crossed a walk of six feet wide, and laid its prey against a wall.—*Chambers's Journal.*

FOUR PORTRAITS.—Four faces among the portraits of modern men, great or small, strike us as supremely beautiful, not merely in expression, but in the form and proportion and harmony of features—Shakspeare, Raffaele, Goethe, Burns. One would expect it to be so; for the mind makes the body, not the body the mind; and the inward beauty seldom fails to express itself in the outward, as a visible sign of the invisible grace or disgrace of the wearer. Not that it is so always. A Paul, Apostle of the Gentiles, may be ordained to be "in presence weak, in speech contemptible," hampered by some thorn in the flesh—to interfere apparently with the success of his mission, perhaps for the same wise purpose of Providence which sent Socrates to the Athenians, the worshippers of physical beauty, in the ugliest of human bodies, that they, or rather those of them to whom eyes to see had been given, might learn that soul is after all independent of matter, and not its creature and its slave. But, in the generality of cases, physiognomy is a sound and faithful science, and tells us, if not, alas! what the man might have been, still what he has become. Yet even this former problem, what he might have been, may often be solved for us by youthful portraits, before sin and sorrow and weakness have had their will upon the features; and, therefore, when we spoke of these four beautiful faces, we alluded, in each case, to the earliest portraits of each genius which we could recollect. Placing them side by side, we must be allowed to demand for that of Robert Burns an honorable station among them. Of Shakspeare's we do not speak, for it seems to us to combine in itself the elements of all the other three; but of the rest, we

question whether Burns's be not, after all, if not the noblest, still the most lovable—the most like what we should wish that of a teacher of men to be. Raffaele—the most striking portrait of him, perhaps, is the full-faced pencil sketch by his own hand in the Taylor Gallery at Oxford—though without a taint of littleness or effeminacy, is soft, melancholy, formed entirely to receive and to elaborate in silence. His is a face to be kissed, not worshipped. Goethe, even in his earliest portraits, looks as if his expression depended too much on his own will. There is a self-conscious power, and purpose, and self-restraint, and all but scorn, upon those glorious lineaments, which might win worship, and did; but not love, except as the child of enthusiasm or of relationship. But Burns's face, to judge of it by the early portrait of him by Nasmyth, must have been a face like that of Joseph of old, of whom the Rabbis relate, that he was mobbed by the Egyptian ladies whenever he walked the streets. The magic of that countenance, making Burns at once tempter and tempted, may explain many a sad story. The features certainly are not perfectly regular; there is no superabundance of the charm of mere animal health in the outline or color; but the marks of intellectual beauty in the face are of the highest order, capable of being but too triumphant among a people of deep thought and feeling. The lips, ripe, yet not coarse or loose, full of passion and the faculty of enjoyment, are parted, as if forced to speak by the inner fulness of the heart; the features are rounded, rich, and tender, and yet the bones show through massively and manfully everywhere; the eyes laugh out upon you with boundless good humor and sweetness, with simple, eager, gentle surprise—a gleam as of the morning star, looking forth upon the wonder of a new-born world—together,

A station like the herald Mercury,
New lighted on a heaven-kissing hill.

—Charles Kingsley.

A PET SNAKE.—The most charming snake-charmer is Mrs. M., whom an inquirer, "no very much afraid of snakes," has been kindly allowed to interview. Mr. M., who received the visitor, after remarks upon the weather, produced out of a cupboard a large boa constrictor, a python, and several small snakes, which at once made themselves at home on the writing-table among pens, ink, and books. Interviewer was a good deal startled when the two large snakes coiled round and round Mr. M., and began to notice himself with their bright eyes and forked tongues. Mr. M. then went to call Mrs. M., leaving him alone with the boa deposited on an arm-chair. He felt queer when the animal began gradually to come near him, to improve their *little à l'alle*, but was soon relieved by the entrance of his hosts, followed by two little children, charming and charmers also. The lady and children went at once to the boa, and, calling it by the most en-

dearing names, allowed it to twine itself most gracefully round about them. This boa constrictor, as thick round as a small tree, twined playfully round the lady's waist and neck, forming a kind of turban round her head, and expecting to be petted and made much of like a kitten. The children over and over again took its head in their hands, and kissed its mouth, pushing aside its forked tongue in doing so. "Every one to his taste," as the old man said when he kissed his cow. The animal seemed much pleased, and kept continually turning its head towards the interviewer, until he allowed it for a moment to nestle its head up his sleeve. This splendid serpent coiled all round Mrs. M. while she moved about the room and when she stood up to pour out coffee. He seemed to adjust his weight so nicely, and every coil with its beautiful markings was relieved by the lady's black velvet dress. About a year ago Mr. and Mrs. M. were away for six weeks, and left the boa in charge of a keeper at the Zoo. The poor reptile moped, slept, and refused to be comforted; but when his master and mistress appeared, he sprang upon them with delight, coiling himself round them, and showing every symptom of intense delight. The children are devoted to their "darling Cleo," as they call the snake, and smiled when interviewer asked if they were ever frightened of it. Interviewer's conclusion. It is mere prejudice, when snakes are not venomous, to abhor them as we do. They are intelligent and harmless, perfectly clean, with no sort of smell, make no kind of noise, and move about far more gracefully than lap dogs or other pets. These seemed very obedient, and remained in their cupboard when told to do so.—*From All the Year Round.*

AMERICAN SILENCE.—The Americans struck me generally as a silent people; though the very contrary idea is prevalent in England, I know not on what grounds. But they certainly seemed to me more taciturn and reserved than ourselves, and I think most travellers will confirm the remark. In the dining-rooms of the large hotels, in the railway cars and elsewhere, they made less noise than half the number of English would have done; there was but little conversation even amongst those acquainted with each other, and those who were unacquainted never spoke at all. In the whole course of my travels, I don't think I was ever addressed in the first instance; I always received perfectly civil replies to my questions, and had many pleasant conversations with strangers on the steamboats, railways, and other public places, but there was always a certain amount of ice to be broken through first. No one can deny them the faculty of wit, or at least an extravagant humor which is characteristically American, yet you rarely hear jokes or a hearty laugh amongst them; there seems a total absence of jollity or joviality in all classes, a ten-

dency rather to gravity or even melancholy, and an American owned to me, half seriously, that he thought there was something of the Red Indian reticence and gravity appearing in the national character. I am inclined to think that this *tristesse*, as the French would call it, arises from the general absorption of all classes in business and money-making; no one is idle, no one "loafs," and nobody seems to have time for enjoyment or pleasure. It is the same charge that other nations make against the English, and with a certain amount of truth, that we take our pleasures *sadly*, which means, partly that we work hard at our pleasures, carrying the same seriousness into them as into our business, but which also, I think, arises from the greater manliness of the English character, that prevents our finding pleasure or relaxation in the same childish amusements as the French or Italians. In America, this national trait has been reproduced, and is intensified by the simple fact that there is no idle class there; no class, as with us (though of course there are individuals), which is exempt from the necessity of working for a living. I never fully appreciated the value of this class at home before; now that I have been to America (and I make the remark in all sincerity), I recognise it fully. Such a class, removed from the anxieties inseparable from the conduct of business or the practice of a profession, has leisure not only for the cultivation of the taste, the pursuit of art, science, and literature, and for studying the amenities of social intercourse, but also for the not less valuable art of pleasure-seeking generally, and of carrying manliness and refinement into our sports and amusements.—*From "An Autumn Tour in the United States and Canada," by J. G. Medley.*

WAR THE NORMAL CONDITION IN THE WORLD.—A fancy has come over us during the last blessed forty years of unexampled peace from which our ancestors of the sixteenth century were kept, by stern and yet most wholesome lessons; the fancy that peace, and not war, is the normal condition of the world. The fancy is so fair that we blame none who cherish it; after all, they do good by cherishing it; they point us to an ideal which we should otherwise forget, as Babylon, Rome, France in the seventeenth century, forgot utterly. Only they are in haste—and pardonable haste, too—to realise that ideal, forgetting that to do so would be really to stop short of it, and to rest contented in some form of human society far lower than that which God has actually prepared for those who love Him. Better to believe that all our conceptions of the height to which the human race might attain, are poor and paltry compared with that toward which God is guiding it, and for which he is disciplining it by awful lessons; and to fight on, if need be, ruthless, and yet full of pity—and many a noble soul has learnt within the last two years [1855-6] how easy it is to reconcile in practice that seeming para-

dox of words—smiting down stoutly evil where-soever we shall find it, and saying, "What ought to be, we know not; God alone can know: but that this ought not to be, we do know, and here, in God's name, it shall not stay." We repeat it: war, in some shape or other, is the normal condition of the world. It is a fearful fact; but we shall not abolish it by ignoring it, and ignoring by the same method the teaching of our Bibles. Not in mere metaphor does the gospel of love describe the life of the individual good man as a perpetual warfare. Not in mere metaphor does the apostle of love see in his visions of the world's future no Arcadian shepherd paradises, not even a perfect civilisation, but an eternal war in heaven, wrath and woe, plague and earthquake; and amid the everlasting storm, the voices of the saints beneath the altar, crying, "Lord how long?" Shall we pretend to have more tender hearts than the old man of Ephesus, whose dying sermon, so old legends say, was nought but—"Little children, love one another"; and who yet could denounce the liar and the hater and the covetous man, and proclaim the vengeance of God against all evil-doers, with all the fierceness of an Isaiah?—*From "Plays and Puritans," by the Rev. C. Kingsley.*

AN EPITAPH.

"I WILL be rich!" I said,
And, I am poor;
"I will be great!"
And, I am least of all;
"When I am old!" said I,
And, I am dead;
"I will be loved!"
And, I am clean forgot;
"I will be wise!"
This one truth have I learned:
That death alone was certain in my life.

"BROTHERLY" RELATIONS.—In the dedication to Washington there is a passage that might be addressed to President Grant:—"Your importance, your influence, and, I believe, your wishes, rest entirely on the comforts and happiness of your people. A declaration of hostilities against Great Britain would much and grievously diminish them, however popular it might be in the commencement, however glorious it might be in the result. My apprehension lest this popularity should in any degree sway your mind is the sole cause by which I am determined in submitting to you these considerations. Popularity in a free state like yours, where places are not exposed to traffic, nor dignities to accident, is a legitimate and noble desire; and the prospects of territory are to nations growing rich and powerful what the hopes of progeny are to individuals of rank and station. A war between America and England would at all times be a civil war. Our origin, our language, our interests are the same. Would it not be deplorable—would it not be intolerable to reason and humanity—that the language of a Locke and a Milton should con-

vey and retort the sentiments of a Bonaparte and a Robespierre?" So say we to-day; though the thought has sometimes come across public men whether our relations with the United States would not be more stable and more happy if we did not speak the same language, if we did not understand and attend to everything disagreeable and untoward that is said or written on either side, if we had not all the accompaniments and conditions of family ties, in the sense in which Mr. Rogers answered some one who spoke of a distinguished literary fraternity as being "like brothers,"—"I had heard they were not well together, but did not know it was so bad as that."—*From "Monographs," by Lord Houghton.*

VEILED.

At old Egyptian festivals, we are told,
Was aye a guest
Who through the feast sat rigid, silent, cold;
Whom no one prest
To share the banquet, yet who still remained
Till the last song was sung, the last cup drained.
The cup, the song, the jest, and laugh went round,
No cheek turned pale,
No guest amazed did query e'er propound,
Or lift the veil
To learn the wherefore one alone sat mute,
With whom nor host, nor friend, exchanged salute.
Usance and rose-crowned drapery did all;
That thing of bone,
That hideous skeleton in festive hall,
Evoked no groan;
No thrill of horror checked the flow of mirth,
Unseen, unfelt that grisly type of earth.
But did the host return when all were gone,
The lights put out,
The unseen presence of that nameless one
Might put to rout
All the gay fancies born of wine and song,
And speechless dread the fleeting night prolong.
At every hearth, in every human heart
There sits such guest,
We may not, cannot bid it thence depart.
E'en at the best,
We can but crown with roses, veil and drape;
The thing exists, though we conceal its shape.
We shroud our skeletons from public gaze,
And from our own;
Ignore their presence with life's lamps ablaze,
Till left alone
With festal fragments, wine-stains, lights gone dim,
We feel them with us, icy, bloodless, grim.
Our nerves would quiver to unveil the bones
Of the dead past;
We lock them in our hearts, with sighs and moans,
To keep them fast;
'Tis but in solitude we turn the key,
And dare to look upon them as they be.

LOVE'S GIFTS.

This dark-brown curl you send me, dear,
Shall save its freshness of to-day
In gentle shrine, when year on year
Have turn'd its former fellows gray.
So shall your image in my breast
With never-fading beauty rest.
What love hath once on love bestow'd,
Translated in its dew of youth
To some remote divine abode,
Withdraws from risk of time's untruth.
Keeping, we lose; but what we give
Like to a piece of Heav'n doth live.

W. A.

